Issaquah Creek Valley
Ground Water Management Plan:

Management Strategies

March 1999
Final

Data and information contained in this document are current as of the period of project performance: 1989 - 1995.

Submitted by:

Issaquah Creek Valley Ground Water Management Committee

King County Department of Natural Resources
Water and Land Resources Division
Suite 2200
700 Fifth Avenue
Seattle, WA 98104
(206) 296-6519

Seattle-King County Department of Public Health
Environmental Health Division
Suite 700
999 Third Avenue
Seattle, WA 98104
(206) 296-4722

Funded in part by the Washington Department of Ecology Centennial Clean Water Fund.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Table of Contents

Issaquah Creek Valley
Ground Water Management Plan

March 1999

Table of Contents

Appendices

Supplement 1: Area Characterization

(Published Separately)

Executive Summary

Issaquah Creek Valley
Ground Water Management Plan

March 1999

Executive Summary

Overview

The Issaquah Creek Valley Ground Water Management Area is a ninety-three square mile area located east and southeast of Lake Sammamish. As mapped on the following page, the boundaries are defined by the natural drainage of the Tibbetts Creek and Issaquah Creek watersheds and the water service area of the Sammamish Plateau Water and Sewer District. Urban development is mostly concentrated in the City of Issaquah and along the I-90 corridor. Most of the remainder of the management area outside of the City limits is rural, characterized by low-density residential uses, forest and agricultural lands, a sand and gravel mine, and a regional landfill. The lower Issaquah Valley aquifer, which provides the primary supply for the area, is located beneath the urban areas of the City. One hundred percent of the water used for private, municipal, industrial and agricultural purposes in the Issaquah Creek Valley Ground Water Management Area is provided by ground water sources.

The Issaquah Creek Valley Ground Water Advisory Committee developed this plan. They were appointed by the Department of Ecology and are submitting the plan to the State for certification. The Ground Water Advisory Committee consists of many different groups that manage, develop, or rely on ground water in the area. Committee members from local government, special purpose districts, water associations, and representatives of agriculture, well drilling, forestry, industry, and environmental organizations met over a nine year period to develop the Issaquah Creek Valley Ground Water Management Plan.

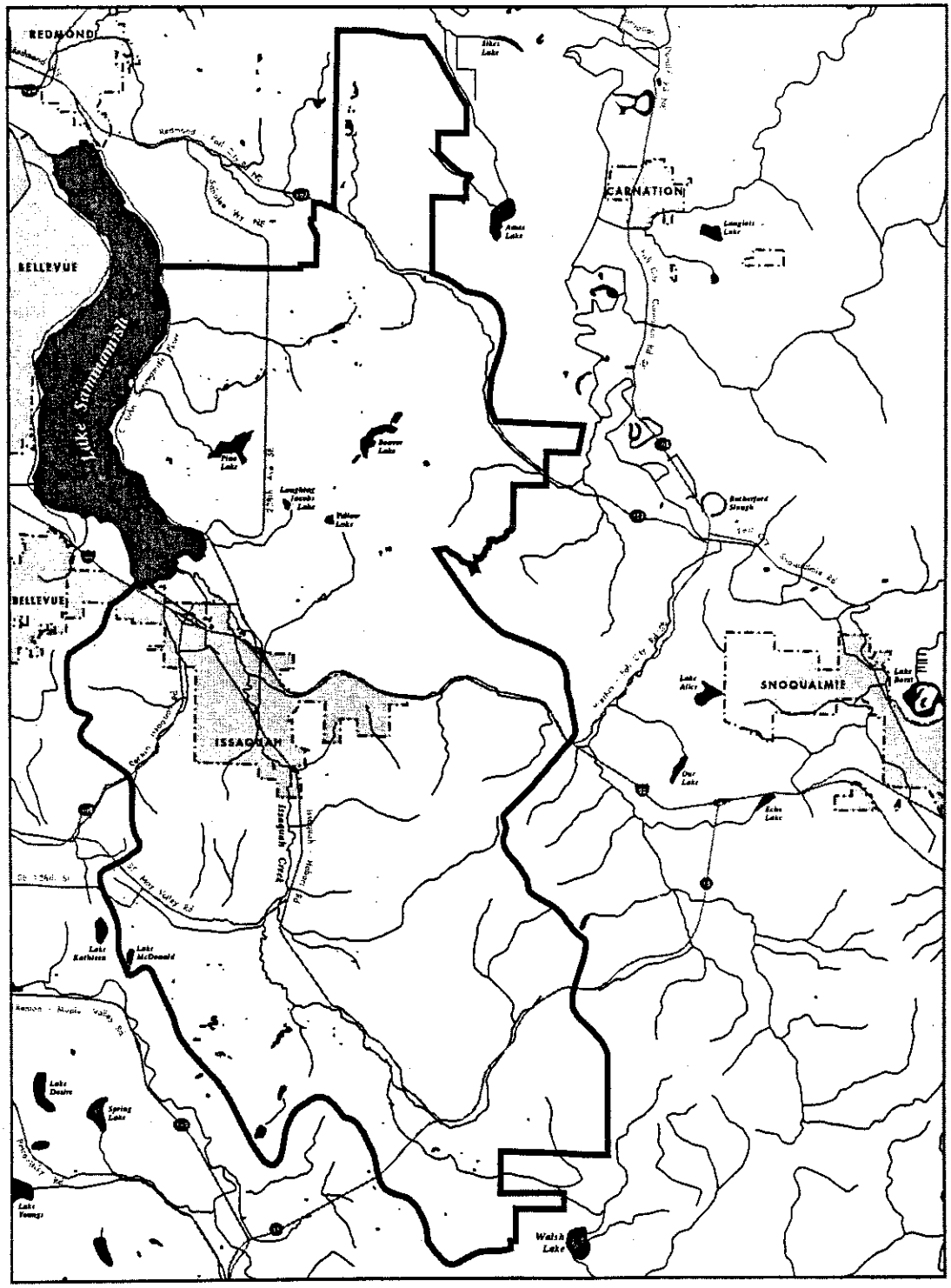
The plan contains an introduction, recommended ground water management strategies, and a recommended implementation process. The supplement to the plan contains the area characterization and background for each issue addressed by the proposed management strategies, references and appendices.

Ground Water Management Plan Goals

The philosophy underlying development of the plan is to protect ground water quality and assure ground water quantity for current and future uses. To achieve this goal, a broad range of strategies are proposed in the plan for consideration when making land use decisions; designing surface water facilities; regulating hazardous materials, on-site sewage disposal, and well construction; and retrofitting of existing infrastructure.

The Issaquah Creek Valley Ground Water Management Plan contains eighteen specific goals intended to provide direction for programs that protect ground water quality and quantity. The goals are divided into three categories and are summary as follows:

Issaquah Creek Valley
Ground Water Management Area



Goals Related to Both Ground Water Quantity and Quality Four goals are proposed that would direct future program development to use special area designations that would help protect ground water resources, develop and implement a data collection and management program, infiltrate storm water, and increase educational efforts for the citizens and local officials of the management area.

Goals Related to Ground Water Quality Water quality in the Issaquah Creek Valley Ground Water Management Area is excellent. The emphasis of this proposed plan is to develop strategies and recommended programs to protect the integrity of the existing water quality. Thirteen goals are proposed that address hazardous materials management, infrastructure (e.g., sewage treatment, underground storage tanks, and landfills), pesticides, and sand and gravel mining. The goals for each of these subject areas simply state that ground water contamination should be prevented.

Goal Related to Ground Water Quantity The proposed management plan contains one goal, which is to manage the quantity of ground water resources of King County to optimize the current and long term benefits. The Issaquah Creek Valley Ground Water Advisory Committee found that the best way to address this goal was to through conservation, education and to develop and implement a long term monitoring and data collection program that would provide decision makers with information on the relationship between land use, ground water use, and ground water levels.

Recommendations

The Issaquah Creek Valley Ground Water Management Plan provides a description of the ground water resources, identifies potential threats to long term water quality and quantity, recommends management strategies for protection, and suggests funding methods for implementation. The recommendations in this plan are important because they foster cooperation among local governments in solving problems that affect a regional resource and because implementation will require a unique and cooperative approach.

After careful study and deliberation about the possible and effective ground water protection measures, the Issaquah Creek Valley Ground Water Advisory Committee adopted approximately sixty-six management strategies. Only those that were given highest priority are noted in this Executive Summary.

Water Quality Management strategies that have been prioritized as "high" address the vulnerability of the lower Issaquah Valley aquifer system and its importance in supplying all of the potable water in the area. These strategies include:

- Incorporating an assessment of water quality impacts from specific land uses in a "Guidance for Environmental Reviewers," especially in areas that are determined to be highly susceptible to ground water contamination, or in high recharge areas;

- Assessing impacts of right-of-way maintenance by chemicals, and suggesting or requiring other methods if right-of-way maintenance methods could impact ground water;
- Developing basic strategies that King County could implement to assist purveyors in their well head protection efforts;
- The King Conservation District helping small farmers prepare and implement Farm Plans for ground water and other resource protection;
- Developing a Sole Source Aquifer Petition to identify the area as a sole source aquifer, which means that partially federally funded projects (such as a freeway interchange) must include ground water protection measures; and,
- Assessing stormwater management facilities' impact upon ground water, and making a recommendation for upgrade if necessary.

Water Quantity Continued urbanization in the Issaquah Creek Valley Ground Water Management Area will require greater volumes of ground water to be withdrawn from the Issaquah Valley aquifer system. Where an aquifer system provides the only source of water to an area and the maintenance of stable ground water levels could be affected by new development, management strategies to assist in preserving ground water quantity are recommended. These include:

- Assessing development's potential impact to recharge areas or infiltration potential during environmental review. Also, an analysis of aquifer capacity and associated surface water and ground water interaction should be performed, if water rights application is part of the development proposal;
- Adopting general aquifer protection policies to provide a basis for implementing specific requirements;
- Providing information to decision makers related to land and water use;
- Providing education for citizens and local governments by adding to existing educational efforts, and developing needed new education; and,
- Mapping physically susceptible and recharge areas to provide a visual tool for decision makers and the public when discussing groundwater concerns.

Implementation

The Issaquah Creek Valley Ground Water Management Plan is intended to provide a framework to assist cooperation between regulatory agencies through implementation of the adopted management strategies. The management plan recommends forming an oversight committee for ground water protection activities in the planning area. The Issaquah Creek Valley Management Committee would consist of one representative of King County, City of Issaquah, Sammamish Plateau Water and Sewer District, Muckleshoot Indian Tribe, and the ground water advisory committee, as appointed by the Metropolitan King County Council.

The key task for implementing agencies is to develop programs, projects, budgets, and regulations consistent with this plan. Implementing agencies include:

Local Government

- City of Issaquah
- City of Sammamish
- King County
  - Department of Natural Resources
  - Department of Development and Environmental Services
  - Department of Transportation
  - Seattle-King County Department of Public Health
  - Office of Strategic Planning
  - Office of Emergency Management

Special Purpose District

- Sammamish Plateau Water and Sewer District

State Agencies

- Department of Ecology
- Puget Sound Water Quality Authority
- King County Cooperative Extension
- King Conservation District

Funding

A major source of long term funding must be developed to implement the ground water management plan. The Ground Water Advisory Committee recommends that the Metropolitan King County Council and Issaquah City Council authorize a ballot measure to create an Aquifer Protection Area to provide funding for the implementation of the plan (per Chapter 36.36 RCW). The ballot measure must specifically state the programs that would be implemented and time frame in which they would be completed. If voters approve the Aquifer Protection Area, the County can collect monthly ground water and septic system user fees. These funds must be used only for Issaquah Creek Valley Ground Water Management Area activities. However, the Metropolitan King County Council has preferred that a range of funding options be explored before an Aquifer Protection Area be authorized, so this issue is considered "unfinished business" in the plan.

The programs identified in this plan will have substantial public costs. The Ground Water Advisory Committee prioritized the programs into high, medium and low categories in part because of anticipated funding limitations. Based on preliminary estimates, implementing the high priority projects would cost approximately 3.56 million dollars. Medium and low priority projects would cost approximately $356,000 and $253,600, respectively.

Acknowledgments

Issaquah Creek Valley
Ground Water Management Plan

March 1999

Acknowledgments

The Issaquah Creek Valley Ground Water Advisory Committee (GWAC), the Seattle-King County Health Department and the King County Department of Natural Resources would like to thank the numerous organizations and citizens for their contributions during the development of this plan. The GWAC was formed in 1987 and met regularly throughout the planning process. The GWAC's role was to develop the plan according to state regulations, to respond to concerns expressed by the affected agencies, and to submit the plan to Washington State Department of Ecology for certification. The tremendous amount of time and effort of the GWAC is the foundation for this plan.

This GWMP has been produced by the Issaquah Creek Valley Ground Water Advisory Committee (GWAC), in conjunction with: the Seattle-King County Health Department; the King County Department of Natural Resources, Surface Water Management Division; the Department of Ecology; the City of Issaquah; and the Sammamish Plateau Water and Sewer District. The King County Department of Development and Environmental Services, King County Council Staff, and the King Conservation District also contributed information or staff.

The Seattle-King County Health Department's Environmental Health Division initiated the ground water planning process. Under direction and support from Charles Kleeburg, then Chief of the Division, William J. Lasby committed to undertaking this complex and lengthy task. Mr. Lasby directed the development of the Plan from 1987 through 1995, and is recognized for his dedication and leadership. Also, the professional and volunteer staff of the SKCHD ground water program are recognized for their perseverance through the many unanticipated setbacks and demands of ground water program development. A special thank you to Sue Keller-Ring and Tom Gearhart for the time and effort they volunteered on this project.

The plan was prepared with the assistance of the following consulting teams: Parametrix, Inc. (prime consultant for this project, responsible for overall product development and administration), Pacific Groundwater Group and Jim Carr and Associates (technical data analysis and area characterization), Hall and Associates (public involvement). Concept Engineering surveyed the water resource monitoring wells.

Issaquah Creek Valley
Ground Water Advisory Committee

Membership	Representing
Catherine Moody, Chair	League of Women Voters
Trudy Rolla	Seattle-King County Health Department
Jack Brooks	Class 4 Water System Designer
Carla Carlson*	Muckleshoot Indian Tribe
Karen Castner*	Citizen Advisory/Issaquah Community
Holly Coccoli	Muckleshoot Indian Tribe
Denise Doherty Smith	King County Master Gardener
Rene Fuentes	Citizen
Robert E. George	Sammamish Plateau Sewer and Water District
Bert Giberson	Grange
R. G. Harms*	Overdale Homeowners Association
Lennard Hendrickson*	Grange
Nina Johnson*	League of Women Voters
Forest Lane	Lakeside Industries
Ross Lindsey*	City of Issaquah Public Works
Ron Little*	Sammamish Plateau Sewer and Water District
Laura Lowe	Washington State Department of Ecology
Sheldon Lynne	City of Issaquah Public Works
Paul Shallow*	Seattle-King County Health Department
Ruth Shearer	Citizen, formerly Commissioner for Sammamish Plateau Water and Sewer District
Stephanie Warden	Metropolitan King County Council Staff

* Alternate

Contributing Agencies

King County

Executive
Ron Sims

Metropolitan King County Council

Maggi Fimia	District 1
Cynthia Sullivan	District 2
Louise Miller	District 3
Larry Phillips	District 4
Dwight Petz	District 5
Rob McKenna	District 6
Pete von Reichbauer	District 7
Greg Nickels	District 8
Kent Pullen	District 9
Larry Gossett	District 10
Jane Hague	District 11
Brian Derdowski	District 12
Christopher Vance	District 13

Seattle-King County Health Department
Dr. Alonzo Plough, Health Officer
Carl Osaki, Chief, Environmental Health Section
Trudy Rolla, Supervisor, Drinking Water Program

King County Department of Natural Resources
Pam Bissonnette, Director
Nancy Hansen, Manager, Water and Land Resources Division
Debbie Arima, Assistant Manager, Water and Land Resources Division
Bill Eckel, Manager, Regional Water Resources Services Unit

Ground Water Program Interdepartmental Team
Mark Isaacson, Project Manager
Lisa Dally Wilson, Hydrogeologist
Sean Groom, Research Assistant
Kathryn Morrill, Program Analyst
Trudy C. Rolla, Senior Environmental Health Specialist
Paul Shallow, Senior Environmental Health Specialist
Ken Johnson, Ground Water Program Lead
Ella Raczkowski, Program Analyst

City of Issaquah

Mayor
Ava Frisinger

City Council
Harris Atkins
Bill Conley
Jim Connor
Wayne Hopman
Richard Jones
David Kappler
Fred Kempe
Maureen McCarry, Ph.D.

Department of Public Works
Lou Haff, Interim Director
Sheldon Lynne, Engineer IV

Sammamish Plateau Water and Sewer District

Board of Commissioners
Robert George
Gifford Miller
Robin Stice

District Manager
Ron Little

Contributing Staff and Ground Water Advisory Committee Members

The following individuals contributed to the GWMP development as former members, alternates, or as staff in the ground water program.

Ingrid Anderson*	King County Building and Land Development
Norman Anderson	Lakeside Sand and Gravel
Brent Barnett	Washington State Department of Ecology
Aaron Barouh	General Manager, Gilman Village
Moe Batra	Washington State Department of Health
Marilyn Batura	Issaquah City Council
Steve Bell	Issaquah City Council
Bob Bruce	King County Council
Kurt Buchanan	Washington State Department of Fisheries
Lisa Burden	Seattle-King County Public Health
John Carpita	City of Issaquah Public Works
Steve Clark	City of Issaquah
Jim Close*	Lakeside Sand and Gravel
Bill Critz	City of Issaquah
Nancy Darling	Washington State Department of Ecology
Russ Darr	Washington State Department of Ecology
Steve Deem	Washington State Department of Health
Cheryl Fambles	Interim Director, City of Issaquah Public Works
Steve Fischnaller	Seattle-King County Public Health
Larry Fisher*	Department of Fisheries
Gene Gumz*	City of Issaquah Planning Department
Ken Guy	Assistant Manager, Surface Water Management Division
James Hansen	Brown Bear Car Wash
Terre Harris	Harris Associates
Bill Heaton*	Seattle-King County Health Department
Paul Hickey	Muckleshoot Indian Tribe
Rowan Hinds	Mayor, City of Issaquah
Kass Hokanson*	Lakeside Sand and Gravel
Tyler Jarvis*	East Hill Hardware, Inc.
Bill Jennings	Mirrormont Water Services
Bob Johnson	Overdale Park Water Association
Holly Kean	King County Council Staff
Bonnie Kosko	Darigold, Inc.
Jim Kramer	Manager, Surface Water Management Division
Gayle Kreitman*	Washington State Department of Fisheries
Renny Lillijord	Mirrormont Water Services
Ross Lindsey	City of Issaquah Public Works
Jerry Liszak	Washington State Department of Ecology
David Masters	King County Parks, Planning and Resources

Doug Mc Clelland	Washington State Department of Natural Resources
Darlene Mc Henry	Issaquah City Council
Bruce McLean	Seattle-King County Public Health
Mary Merker*	Issaquah Alps Trail Club
Jack Merritt	Sammamish Plateau Water and Sewer District
Hal Michael	Washington State Department of Fisheries
Dan Moran	Seattle-King County Health Department
Mike Nygaard	Darigold, Inc.
Jim Peck*	Private Well Owner
Dave Peeler	Washington State Department of Ecology
Carol Penny	Issaquah School District
Elizabeth Phinney	Washington State Department of Ecology GWMP Project Manager
Larry Ratte	Washington State Department of Fisheries
Rick Reininger	Private Well Owner
Klaus Richter	King County Parks, Planning and Resources
Monica Roppo	Seattle-King County Health Department
Keith Rose	U. S. Environmental Protection Agency
Marian Runnels	Overdale Park
Doug Rushton	Washington State Department of Ecology GWMP Project Manager
John Seebeth	Issaquah Alps Trail Club
Langston Sligh	Langley Associates
Mark Spahr	City of Issaquah Public Works
Dave Stockton	Citizen
Mary Stockton	Citizen
Ron Taylor	Darigold, Inc.
Dale Timmon	Overdale Park Water Association
Paul Townley	Citizen
Shale Undi	Evergreen Mobile Sales
Tom Willette*	Langley Associates
Carolyn Boatsman	Seattle-King County Health Department
Sue Keller-Ring	Seattle-King County Health Department
Tom Gearhart	Seattle-King County Health Department

** Denotes Alternate*

Chapter One

Introduction

Issaquah Creek Valley
Ground Water Management Plan

March 1999

Introduction

Citizens and officials of King County are stewards of the ground water resource both for present and future generations. This plan is intended to inform and guide ground water protection efforts of the citizens and officials. This Ground Water Management Plan has been developed because: (1) ground water is a limited resource that is vital to the future of this area, the well being of its residents, and the vitality of our living natural resources; (2) ground water is not a separate body of water nor is it a separate environmental resource; and (3) no external water source is available nor will it be in the foreseeable future. Therefore, ground water needs to be protected and managed as a part of the entire hydrologic system, ecosystem, and economic system.

Ground water provides 100 percent of the water used in the Issaquah Creek Valley Ground Water Management Area for private, municipal, industrial, and agricultural needs. Also, ground water provides base flow to surface water bodies during low rainfall to sustain fish, wildlife, and recreation. The ground water resource must be protected from sources of contamination because once a ground water source is contaminated, it may be lost forever. Moreover, the cost of protecting ground water from contamination is considerably less than the cost of remedial action. Ensuring ground water availability is also crucial. The natural hydrologic system can be interrupted by aquifer over use, creating impermeable surfaces, and other results of urbanization.

1.1 Ground Water Management Program Purpose and Scope

The purpose of the Washington State Department of Ecology's (Ecology) ground water management program is to develop and implement local ground water management plans. These plans are intended to represent consensus of the Issaquah Creek Valley Ground Water Advisory Committee regarding the most practical ground water protection measures to safeguard quality and to ensure continued availability of this vital resource. Ecology's ground water management program provides the direction for local and state agencies to develop regulations and programs for protecting ground water.

The purpose of the Issaquah Creek Valley Ground Water Management Plan is to provide a framework for cooperation between various agencies through implementation of the adopted ground water protection measures. It is also intended to serve as a guide to further focused research on the aquifers in addressing data and regulatory protection gaps.

1.2 Ground Water Management Program History

In response to growing concern in Washington State about ground water resources, the state legislature passed Substitute House Bill 232 in 1985 (Chapter 90.44.400 RCW *Regulation of Public Ground Waters*). This legislation directed Ecology to:

- Identify specific locations in need of ground water management programs.
- Establish a program to provide financial assistance to these locations.

- Develop guidelines for the implementation of local ground water management strategies.

Ecology responded by adopting regulations defining a ground water management area as an area that encloses one or more aquifers, and which exhibits a justifiable concern for the quality and/or quantity of the ground water (*Ground Water Management Areas and Programs* Chapter 173-100 WAC).

Ecology's ground water program establishes protocols and guidelines for developing a local ground water management plan. A ground water management plan is designed to protect ground water quality and assure ground water quantity for current and future uses. The guidelines establish a process that allows for ground water issues, concerns and opportunities from all interested groups and agencies to be incorporated into the planning process. The process is designed so that a ground water management plan can be initiated and developed on the local level while being supported by state legislation and regulations. The ground water management program process also provides local government with a method to achieve comprehensive ground water protection goals.

On May 19, 1986, King County petitioned Ecology to designate the Issaquah Creek Valley as a Ground Water Management Area. The petition document outlined the following ground water protection problems:

- Potential contamination sources threaten ground water quality, or ground water is susceptible to contamination;
- Major aquifers have the potential for over use based on projected future demands; and,
- An approved coordinated water system plan identified a need for a Ground Water Management Plan.

Ecology designated the Issaquah Creek Valley Ground Water Management Area on October 7, 1986 and approved the membership of the Issaquah Creek Valley Ground Water Advisory Committee, which consists of a broad cross section of interests with representatives from many groups. Ecology selected the Seattle-King County Health Department to be the lead agency because it has jurisdiction throughout the Ground Water Management Area and has a regulatory role in water systems, on-site sewage systems, and other environmental health concerns. On January 1, 1996, the Metropolitan King County Council assigned responsibility for the ground water program to the Department of Natural Resources, Surface Water Management Division. Subsequently, the division was renamed the Water and Land Resources Division. In March 1996, the Department of Ecology approved a boundary change that moved all of Sammamish Plateau Water and Sewer District into the Issaquah Creek Valley Ground Water Management Area.

1.3 Management Plan Process Goals and Objectives

The first step in developing a ground water management plan is to establish goals and objectives. The Ground Water Advisory Committee and the Seattle-King County Department of Public Health developed the following goal and objectives to help guide the process for development of the plans.

Goal To protect the quality and quantity of ground water by providing guidance for effective coordinated management of the ground water resource.

Objectives

- Designate the Issaquah Creek Valley area as a Ground Water Management Area, thereby making it eligible for state grants designated for development of ground water management programs and plans.

- Develop a ground water management plan. This plan must:

    1. Be consistent with federal regulations, state ground water management laws and local ordinances.
    2. Include the public and local agencies' participation in drafting, reviewing, and modifying the plan.
    3. Include the following (as required by Chapter 173-100 WAC *Ground Water Management Areas and Programs*):

        - A public involvement plan to educate and inform the public about ground water and the planning process. The public will be informed of the need to protect the ground water resource from contamination and overuse.
        - An area characterization section that includes mapping jurisdictional boundaries showing land and water use management authorities' boundaries and goals; a description of the locale; the hydrogeology; the ground water quality; and the current ground water use and future needs.
        - Identification and description of threats to ground water; stating goals and objectives related to these threats; and recommending strategies that solve or reduce these threats. Technical understanding of the ground water resource will be developed to assist decision-makers in formulating public policy.
        - An implementation process for the plan, which includes: (1) a work plan for each affected agency and jurisdiction, (2) an effectiveness monitoring system, and (3) a process for periodic review and revision.

- Obtain local approval and state certification of the plan, which will ensure implementation of the recommended ground water protection measures. Public

agencies will work cooperatively to fulfill their responsibilities to protect the ground water resource. Local, state, and regional land use and water use plans, policies, and regulations will be effective in protecting the ground water resource.

1.4 Plan Contents

The proposed Issaquah Valley Creek Ground Water Management Plan contains management strategies and a proposed implementation process. The supplement contains the area characterization. Each of these sections are briefly described below.

The "Recommended Ground Water Management Strategies" address the potential threats to ground water quality and quantity. The recommended management strategies are prefaced by adopted goals and a summary statement of the issues explored by the Ground Water Advisory Committee and followed by recommended management strategies. This section also contains a work plan for each management strategy, including identifying the responsible agencies and priority.

The "Recommended Implementation Process for the Ground Water Management Program" describes the preferred methods for funding and implementing the plan. It also contains tables showing the management strategies. The management strategies are listed in order, based on the Ground Water Advisory Committee priorities for funding and implementation. Another table lists the management strategy by responsible agency, in implementation order, with priority.

The Supplement to this plan contains the area characterization and other background materials. The area characterization section describes the ground water management area and how its boundaries were chosen. It lists the governments and agencies that manage land and water use and describes their responsibilities. The section characterizes historical land use activities that impact ground water quality and quantity; it also describes the area's hydrogeology and characterizes past and present ground water quality. In addition, the section provides estimates of historical and current rates of ground water use and makes projections of future ground water supply needs.

The complete issue papers providing discussion for each recommended ground water management strategy, with unabridged background information, are available upon request from the Ground Water Program in the Water and Land Resources Division.

1.5 Management Plan Team and Responsibilities

Development of this plan was a coordinated effort between local and state government and citizen representatives on the Ground Water Advisory Committee. The following provides a brief explanation of the responsibilities of each group in developing the ground water management plan.

Issaquah Creek Valley Ground Water Advisory Committee

The Ground Water Advisory Committee has played a critical role in developing a sound ground water management plan. The Issaquah Creek Valley Ground Water Advisory Committee consists of a broad cross section of ground water interest groups, including local, state, and federal government agencies, large and small businesses, environmental organizations, and citizens. The Ground Water Advisory Committee has been responsible for assuring that the plan is both technically and functionally sound. It is on behalf of the committee that the plan is being submitted to Ecology for certification. The committee's specific duties included:

- Overseeing development of the Ground Water Management Plan;
- Reviewing the work plan, schedule, and budget developed by the lead agency;
- Assuring that the plan is functional and will not cause environmental or economic hardship;
- Verifying that the plan is consistent with the state's regulations on ground water protection; and,
- Formulating and implementing a public involvement plan.

Department of Ecology

Ecology appointed the Ground Water Advisory Committee in cooperation with local governments and participated on the advisory committee. Ecology staff reviewed and approved interim plan products (e.g., Public Involvement Plan, Data Collection and Analysis Plan, Quality Assurance/Quality Control Plan, and the Data Management Plan), participate on the Ground Water Advisory Committee, and held a public hearing on the draft plan. In addition, Ecology will certify this final Ground Water Management Plan.

Seattle-King County Health Department

The Seattle-King County Health Department was responsible for coordinating the activities necessary to develop this proposed Ground Water Management Plan. As lead agency, this included the preparation of a work plan, coordinating data collection, scheduling advisory committee meetings, developing the issue papers, drafting the plan based on committee direction, and obtaining concurrence from the affected agencies.

King County Department of Natural Resources

The Metropolitan King County Council transferred the ground water management program from the Seattle-King County Health Department to the Surface Water Management Division as part of the County's reorganization plan. Transfer of the program occurred on January 1, 1996, which coincides with the Surface Water Management Division being placed in the new Department of Natural Resources.

Subsequently, the division was renamed the Water and Land Resources Division and is now the lead agency for the Ground Water Management Program.

City of Issaquah

An interlocal agreement between the City and King County was signed to help coordinate the ground water management plan activities. The city assigned one person to serve as liaison between the two parties and provided three members for on the ground water advisory committee. In addition, the City has been responsible for:

- Assisting in development of a detailed scope of work and budget;
- Assisting in the preparation of the draft grant application;
- Assisting King County in obtaining approval of grant application;
- Participating in consultant selection process; and
- Financing a portion of the local matching share for the Ground Water Management Plan by contributing approximately $35,700 cash and $34,500 of in-kind services.

Sammamish Plateau Water and Sewer District

The District also provided three members to serve on the Ground Water Advisory Committee and has been responsible for:

- Participating in the consultant selection process;
- Providing financial support to various ground water educational events;
- Providing technical support for wellhead and ground water studies; and
- Contributing approximately $33,900 cash and $7,400 of in-kind services.

1.6 Public Review, Certification, and Implementation

Public Review

Upon completion of a draft plan, Ecology held a public hearing for comment and review of the plan. This public hearing was held at the Clark Elementary School in the City of Issaquah on April 13, 1995. Public comments from that hearing are included as Appendix A of this document. The lead agency collected public and agency comments during the three month period between April and July, 1995. Comments received during this period were analyzed by the Ground Water Advisory Committee and, where appropriate, included in the text of this document.

The Draft Issaquah Creek Valley Ground Water Management Plan has been reviewed under the requirements of the State Environmental Policy Act. The Seattle-King County Health Department prepared an environmental checklist and published a Determination of Nonsignificance in March of 1995. No comments were received pertaining to the

adequacy of the environmental review and the determination was sent to the Department of Ecology after the public comment period had closed.

Various drafts of this Plan have been prepared, leading up to the present finalization. A Draft was published in December 1994 for concurrence review and comment by various affected agencies. Comments collected during the comment period (through July 1995) were discussed with the affected agencies and governments and necessary changes incorporated into a final draft published in March 1996. This draft was submitted to the Metropolitan King County Council, and was assigned to the Law, Justice, and Human Services Committee, and hearings were held in July - October 1996 and August - September 1997. However, the plan was not passed, either for concurrence or non-concurrence, in either 1996 or 1997.

In 1998 there was a new effort to move the plan along. This time the plan was referred to two committees, the Utilities and Natural Resources Committee and the Growth Management Committee. Hearings were held in May and June of 1998, and the plan was approved, with conditions, for passage by the Council. The Ground Water Advisory Committee (GWAC) met on July 2, 1998 to discuss the issues, and some of their members testified before Council during its final hearings on the Plan on July 6. As part of the testimony, a letter was presented to Council detailing the GWAC's understanding of the changes, and is included in Appendix B. That same day, the County Council passed Motion 10496 that basically concurred with the plan, although with conditions. The motion, and a sample letter that was attached by Council to the motion, are also included in Appendix B.

The Department of Natural Resources (DNR) sent these concurrence materials to the GWAC on September 3rd with a cover letter. The chair of the GWAC, Ms. Catherine Moody, responded with a letter to the GWAC (dated September 7th) indicating the committee's general acceptance of the changes. All of these items are included in Appendix B.

Certification

The plan was revised according to Council's motion and submitted to Ecology in March 1999. Following Ecology's review of the plan and determination that it is consistent with the intent of Chapter 173-100 WAC ("Ground Water Management Areas and Programs", see Appendix D) the Plan will be certified and its implementation can begin.

Implementation

Affected agencies and jurisdictions are responsible for implementing the plan following certification by Ecology. Implementation of the plan by water purveyors, cities, and the County is voluntary. The plan may be modified under the supervision of the new Issaquah Creek Valley Ground Water Management Committee. This committee will

advise implementing agencies, oversee ground water management activities, review new issues, and consider new programs that may emerge after the plan is certified. It will be the responsibility of the Management Committee to develop a process for how to incorporate new issues and programs.

Chapter Two

Recommended Management Strategies

Issaquah Creek Valley
Ground Water Management Plan

March 1999

Recommended Management Strategies

2.1 Introduction

Ground water management plans contain management strategies to address the potential threats to ground water quality and quantity in the planning area. The Ground Water Advisory Committee was charged with the task of identifying the topics or potential problems of concern and adopting management strategies. The Issaquah Creek Valley Ground Water Advisory Committee identified the following topics for consideration: special area designations to enhance ground water protection, storm water management, hazardous materials management, underground storage tank management, on-site sewage disposal system use, pesticides and fertilizers, well construction and abandonment, sewer pipes, solid waste landfills, burial of human remains, sand and gravel mining, biosolids and effluent, and ground water quantity.

In developing the management strategies, the Issaquah Creek Valley Ground Water Advisory Committee made maximum use of existing governmental programs and regulatory structures. The Issaquah Creek Valley Ground Water Advisory Committee was determined to build on existing efforts rather than developing new and potentially duplicative programs. Also, the Ground Water Advisory Committee realized that the adopted strategies could not totally prevent contamination problems from occurring in the Issaquah Creek Valley aquifers, but that implementation of the management strategies should greatly limit the frequency and severity of such problems.

The Ground Water Advisory Committee prioritized management strategies based on relative impact to ground water and the method used to address the problem (such as regulation or education). The Ground Water Advisory Committee prioritized the management strategies because they recognized that not all management strategies could be implemented at the same time (so they could be implemented over several years), and that some agencies might not concur with all recommended management strategies. Prioritization allows the Ground Water Advisory Committee to indicate the relative importance of each recommended management strategy. This process resulted in twenty different ranking levels. These are grouped into high (1 - 8), medium (9 - 15), and low (16 - 20).

This chapter covers those issues that affect both ground water quality and quantity (Section 2.2); those that affect ground water quality only (Section 2.3); and those that affect ground water quantity only (Section 2.4). The sections first describe the goals for each issue, then specific issues with each topic are stated, and the adopted management strategy(ies).

Summary of Technical Findings and Recommendations

The following discussion illustrates the relationship between the technical information found in the Area Characterization and the recommended management strategies in the

Plan. The recommended management strategies can be classified as pertaining to either ground water quantity, ground water quality or both quantity and quality.

Water Quality Issues

One hundred percent of the water used for private, municipal, industrial and agricultural purposes in the Issaquah Creek Valley Groundwater Management Area is provided by ground water sources. The ground water system in this area is composed of mountain, upland and valley aquifers. The high-capacity production wells, which provide the primary water supply, are located in the lower Issaquah Valley. At least three major aquifer zones have been identified in these deposits; an upper, lower and deep zone. Data collected for this Plan do not show regional confining layers within this aquifer system. Without a protective layer, the water table of the most shallow of the valley aquifers is considered to be highly susceptible to contamination from surface sources.

Water supply wells draw from all three zones in the valley, which have been demonstrated to be in limited hydraulic continuity, or connected. Pumping the deeper wells can cause the water in the upper aquifer to be pulled down toward the deeper aquifer. However, the natural direction of flow in the aquifer system near Lake Sammamish is upward from the deep and lower zones. It is possible, but unlikely, that if the upper aquifer zone is contaminated, the water quality in all three zones could become contaminated as well. The production wells draw water from a considerable depth in the upper zone, therefore ground water supply from the upper zone is considered to be moderately susceptible to contamination.

Ground water in the Issaquah Creek basin comes from precipitation in the basin. Ground water recharge occurs when precipitation travels through soil and reaches the water table of the uppermost aquifer. Areas where ground water is most susceptible to contamination are where precipitation and potential contaminants can travel easily through the soil. The areas with the highest infiltration potential are those with sand and gravel deposits. The most significant of these areas lies east of the City of Issaquah on the uplands between the East and North Forks of Issaquah Creek.

Aquifers are considered to be "vulnerable" where the soil is permeable, depth to ground water is shallow, and where a potential contamination source is present. (An example would be where a dry cleaners, using an on-site sewage disposal system, is located over a gravel aquifer.) Given the location of municipal wells, the lower Issaquah Creek valley is a vulnerable aquifer system. In the lower valley, high-capacity wells have been completed at depths of ninety-five feet below ground surface and deeper in coarse-grained sediments, which generally are not separated from the surface by impermeable materials. Several potential contaminant sources are present in the City of Issaquah and surrounding areas, and may increase in number as development increases. In addition, commercial and industrial growth is likely to continue in the downtown area in the vicinity of the lower valley aquifer system. Most large supply wells are located near major transportation corridors and in the vicinity of high-intensity land uses.

The upper Issaquah Valley aquifer system has been, and will continue to be, very vulnerable to contamination. This system, located in the southern part of the Ground Water Management Area, is affected by known contaminant sources including the Cedar Hills Landfill and Queen City Farms Industrial Waste Site (currently on the U. S. Environmental Protection Agency's Superfund List). These sites have contaminated the regional groundwater system in the upper valley, upgradient of the lower valley area. Both sites have ongoing clean-up activities to mitigate the ground water contamination.

During the period of this study, one known contamination incident has occurred in the lower Issaquah Creek Valley involving leakage from an underground storage tank containing petroleum products. Traces of petroleum based contaminants were detected as deep as approximately sixty feet below ground surface. This event threatened, but did not impact, the water quality in an existing high-capacity production well. The incident increased the awareness of the importance of ground water protection in this area.

Even with the potential for contamination, water quality in the lower Valley has been found to be generally excellent. Although no volatile organic compounds have been detected in major aquifers or wells, volatile organic compounds have been found in shallow ground water at spill sites in the lower valley. Therefore, land use activities do appear to impair local water quality. The Ground Water Advisory Committee discussed many land use activities that could affect ground water quality, and recommended management strategies for these activities. These activities will have the greatest impact on ground water when they occur in ground water recharge zones and in zones of high ground water susceptibility.

Management strategies that have been prioritized as "high" address the vulnerability of the lower Issaquah Valley aquifer system, and it's importance in supplying the majority of the potable water in the area. These strategies include:

- Incorporating an assessment of water quality impacts from specific land uses in a "Guidance for Environmental Reviewers," especially in areas that are determined to be highly susceptible to ground water contamination, or in high recharge areas.
- Assessing impacts of right-of-way maintenance by chemicals, and suggesting or requiring other methods if right-of-way maintenance methods could impact ground water.
- Development of basic strategies that King County could implement to assist purveyors in their wellhead protection efforts.
- The Conservation District would help small farmers prepare and implement Farm Plans for ground water and other resource protection.
- Developing a Sole Source Aquifer Petition to identify the area as a sole source aquifer. This means that partially federally funded projects must include ground water protection measures (such as a freeway interchange).
- Assessing stormwater management facilities' impact upon ground water, and making a recommendation for upgrade if necessary.

Water Quantity Issues

The ground water quantity issue has two components: recharge and water use. Land use activities affect both recharge and demand for water. Decrease in ground water recharge can be caused by development (by paving and building over high recharge areas or areas of high infiltration potential).

Recharge to the lower valley aquifers is primarily from precipitation falling directly on the lower valley, and on the eastern plateau areas. The eastern plateau areas of the Ground Water Management Area (Grand Ridge and Lake Tradition) do not directly overlie the valley aquifers, however, they may provide up to thirty percent of the direct recharge to the lower Issaquah Valley ground water system. Therefore, it is important that these areas be included in mapping of susceptible ground water and of high recharge areas, and that development trends be assessed in these areas. The recently approved Grand Ridge development, recognizing it's location on this recharge area, will include several measures to protect ground water, such as recharging ground water with surface water runoff, and homeowner education material.

The demand for water in this area is expected to increase, as more development occurs. According to the King County Comprehensive Plan, demand for water will exceed current supply for the City of Issaquah and the Sammamish Plateau Water and Sewer District by the year 2005. Updated figures reported by the purveyors indicate that the City of Issaquah's demand will exceed current supply in 2005 and Sammamish Plateau Water and Sewer District's demand will exceed current supply in 2012. No external water sources are available, nor will they be in the near future. Further water appropriations would be necessary to meet both instantaneous demand and annual demand by the year 2010. However, the Sammamish Plateau Water and Sewer District was not granted additional water volume (only supplemental rights) in their water right application for a lower Issaquah Valley well, in January of 1996. Water right applications in the Issaquah Creek Valley are evaluated by the Department of Ecology for impacts to senior rights and surface water. The surface waters of the basin are closed to further appropriations. If adequate mitigation were developed for an appropriation, the application for water rights would be approved.

Recently it has been difficult for the City of Issaquah and the Sammamish Plateau Water and Sewer District (the two major purveyors in the Ground Water Management Area) to obtain additional water rights for valley wells from the Department of Ecology, based on the continuity of surface and ground waters in the basin. These purveyors are using creative alternatives to maximize their current water appropriation to meet requirements of the Growth Management Act and accommodate anticipated accelerated growth in the area. The City of Issaquah is changing their operating strategy from an average day (pumping rate) storage strategy to peak day storage. The City intends to use storage to offset peak demand, and is currently assessing the feasibility of building reservoirs for storage purposes. The Sammamish Plateau Water and Sewer District is also currently

adjusting operations of the distribution and storage systems to enhance their existing water rights and pumping capabilities.

The Issaquah Wellhead Protection Plan addresses zoning and future land use with respect to aquifer protection within the City of Issaquah in areas of high susceptibility or high recharge. Recommendations in this plan should be followed to assure appropriate land use in most critical areas.

In summary, continued growth in the Issaquah Creek Valley Ground Water Management Area will require greater volumes of water than is currently withdrawn from the Issaquah Valley aquifer system. To meet this need, purveyors are investigating conventional and unconventional supply alternatives. New developments should recognize and mitigate their potential impact to the ground water supply. In this case, where an aquifer system provides the only source of water to an area, and the maintenance of stable ground water levels is of importance, the Ground Water Advisory Committee recommends management strategies to assist in preserving ground water quantity. These include:

- Assessing development's potential impact to recharge areas or infiltration. Also, an analysis of aquifer capacity and associated surface water/ground water interaction should be performed, if water rights application is part of the development proposal. This would add to the current environmental threshold determination review (which currently only addresses withdrawal or direct contamination).
- Adoption of general aquifer protection policies to provide the policy framework for implementation of specific requirements.
- Providing information to decision makers to aid them in land and water use decisions.
- Providing education for citizens and local governments by adding to existing educational efforts, and developing needed new education.
- Mapping physically susceptible and recharge areas to provide a visual tool for decision makers and the public when discussing groundwater concerns, and to provide an estimate of the land area and governments involved in groundwater protection.

2.2 Programs Related To Both Ground Water Quantity and Quality

During the planning process, two significant legislative acts influenced the Ground Water Advisory Committee's recommendations. The first is the Growth Management Act, which was passed by the Washington legislature in 1990. This act requires local government to identify and protect areas that are critical for aquifer recharge. The Ground Water Advisory Committee responded by recommending some actions that are countywide in applicability rather than limited to the Ground Water Management Area. This is in keeping with the directive of the Growth Management Act to local governments to cooperatively protect aquifer resources on a county or regional basis.

The second is wellhead protection requirements in the State Department of Health Wellhead Protection Program. The program requires public water system purveyors to delineate wellhead protection areas for each public water system and develop programs to protect ground water in those areas. The Ground Water Advisory Committee recognized the need for King County to be able to respond to recommendations in Wellhead Protection Plans for land use and other ground water protection strategies.

The Ground Water Advisory Committee identified four topics that affect ground water quantity and quality: special area designation; data collection and management; storm water management; and education. The goals that guided development of the recommended management strategies for each are:

Special Area Designations to Enhance Ground Water Protection. To use available special area designations in conjunction with local regulations and policies to enhance ground water protection efforts in the Issaquah Creek Valley Ground Water Management Area.

Data Collection and Management Program. To protect ground water quantity and quality by developing and implementing a data collection and management program.

Storm Water Management. To promote storm water management practices that provide the greatest amount of recharge while protecting ground water quality.

Education Program. To increase individual participation in protecting the ground water resource by educating citizens in the Issaquah Creek Valley Ground Water Management Area about ground water, the threats to quantity and quality, and ways they can reduce those threats.

2.2.1 Special Area Designations to Enhance Ground Water Protection

A number of special federal, state, and local area designations may be used to enhance a Ground Water Management Program. Incorporating them may offer such benefits as a source of funds to implement ground water protection measures, enhanced eligibility for grant funds, or expanded review of development proposals. Increased public recognition of the value of an aquifer may be an important result of a special area designation. Among the special area designations discussed in this chapter are the following:

- Areas with a critical recharging effect on aquifers used for potable water per the Growth Management Act (Chapter 36.70A RCW);
- Well Head Protection Areas, according to the 1986 amendments to the federal Safe Drinking Water Act;
- Environmentally Sensitive Areas, according to State Environmental Policy Act Rules (Chapter 197-11 WAC);
- Special Protection Areas, according to Water Quality Standards for Ground Waters of the State of Washington (Chapter 173-200 WAC);

- Sole Source Aquifers, according to the federal Safe Drinking Water Act of 1974; and
- Aquifer Protection Areas, according to Chapter 36.36 RCW.

Areas with a Critical Recharging Effect on Aquifers Used for Potable Water per Chapter 36.70A RCW, Growth Management Act

The Growth Management Act of 1990 requires all counties and cities in Washington to plan in order to manage growth. This act, much of which is codified in Chapter 36.70A RCW, requires that the largest and fastest growing counties (and the cities within them) conduct land use planning to achieve protection of critical areas.

The Growth Management Act also requires that the comprehensive plans contain land use controls to protect quality and quantity of ground water used for public water supplies (Chapter 36.70A.070(1) RCW). King County adopted the November 1994 King County Comprehensive Plan to meet the Growth Management Act requirements. The King County Comprehensive Plan contains policies to designate and protect critical aquifer recharge areas. The City of Redmond has adopted its Comprehensive Plan, and adopted development regulations in 1996.

The Well Head Protection Program Under the Federal Safe Drinking Water Act

The 1986 amendments to the Safe Drinking Water Act established a Well Head Protection Program intended to safeguard ground waters that are tapped by public water supply wells. A Well Head Protection Area is defined in the Safe Drinking Water Act as "the surface and subsurface area around a well or wellfield supplying a public water system through which contaminants are reasonably likely to move toward and reach such water well or wellfield" (42 U.S.C.A. 300h-7(e)). Due to the nature of well head protection, much of the actual implementation efforts will be done by public water systems, local governments, and by those agencies with source-specific jurisdictional responsibilities. Public water system purveyors are responsible for delineating the Well Head Protection Area and inventorying sources of contamination within the Well Head Protection Area. Local land use authorities (cities, counties) are responsible for zoning controls and pollution sources outside the authority of the federal or state government. The effectiveness of these programs was largely predicated on the ability of the municipal well owner to directly regulate land use in all or a large portion of the zone of contribution. However, where public water systems are entities that do not control surrounding land use, the success of the Well Head Protection Program will depend on the willingness of other local governments to impose necessary land use or other restrictions.

Considering the large number of public water systems, implementing individualized land use controls for each would be unworkable for King County. However, it should be possible to develop a basic Well Head Protection Program under which water purveyors

could apply to the county for protection. The City of Issaquah and the Sammamish Plateau Water and Sewer District have completed the lower Issaquah Valley Well Head Protection Plan (Golder Associates, November, 1993). They may ask King County to enact wellfield protection measures for the area outside of the City of Issaquah.

Environmentally Sensitive Area Designation Under the State Environmental Policy Act

The State Environmental Policy Act (SEPA) rules are implemented in unincorporated King County through the King County Code, "County Environmental Procedures" (Title 20.44). The Department of Development and Environmental Services is responsible for environmental review in relation to code requirements and for implementing SEPA compliance for private development proposals in King County. Municipalities within King County have either adopted the SEPA rules by reference or have developed their own regulations incorporating them. Municipalities conduct environmental review for projects occurring within incorporated boundaries.

In developing the SEPA rules, Ecology determined that some classes or types of activities, because of their size or nature, are not likely to represent a significant environmental impact and should, under ordinary circumstances, be exempt from SEPA requirements. This list of exempted types of activities is termed categorical exemptions. The categorical exemptions include some activities that could potentially represent a significant adverse environmental impact in areas of unusual ground water sensitivity.

Local governments have the authority to lower thresholds for requiring environmental review by designating certain portions of their land use jurisdiction as an Environmentally Sensitive Area. These areas are generally more vulnerable to the adverse effects of land and water-use activities. Designation would permit the Metropolitan King County Council and city councils to eliminate from environmental review many of the categorical exemptions that are currently allowed.

Sole Source Aquifer Designation Under the Federal Safe Drinking Water Act

The primary intent of the program is to prevent projects that receive federal financial assistance from contaminating aquifers representing the sole or principal source of drinking water for an area. Projects that receive a portion, but not 100 percent, of their funding from the federal government are affected.

The two Sole Source Aquifers in King County are in the lower Cedar River Valley and Vashon Island. There are a number of positive aspects of a Sole Source Aquifer designation, the most important of which is its public awareness value.

Aquifer Protection Areas Under Chapter 36.36 RCW

The purpose of an Aquifer Protection Area is to establish a funding base for ground water protection, preservation, and rehabilitation programs. Aquifer Protection Areas are established through an election ballot issue requiring approval from a simple majority of voters within the proposed Aquifer Protection Area. If voters approve the Aquifer Protection Area, the county can collect modest water and septic system user fees. Fees may only be collected from users of water withdrawn from an aquifer as opposed to a surface water source.

Issue 1 General Protection of Aquifers: Effective aquifer protection requires cooperation between land use jurisdictions because aquifers do not coincide with jurisdictional boundaries. General policies that provide guidance for land use decisions could be adopted by King County and the City of Issaquah in the Issaquah Creek Valley Ground Water Management Area to provide a basic level of protection for aquifers.

SA-1A Elimination of Categorical Exemptions to the State Environmental Policy Act: King County and the City of Issaquah will jointly determine whether any categorical exemptions to the State Environmental Policy Act should be eliminated in the most physically susceptible and recharge areas as identified (mapped) in the Ground Water Management Plan.

Who:	King County and the City of Issaquah via the Management Committee.
Priority:	High (Level Equivalent: 3)
Cost:	0.25 FTE staff per local government; 2 local governments involved.
Funding Source:	Aquifer Protection Area Fund.

SA-1B Designation of Environmentally Sensitive Areas: If any categorical exemptions are determined to be eliminated (under SA-1A) King County and the City of Issaquah will designate the most physically susceptible and recharge areas in the Issaquah Creek Valley Ground Water Management Area as an Environmentally Sensitive Area as authorized by the State Environmental Policy Act so that those categorical exemptions may be eliminated.

Who:	King County and the City of Issaquah.
Priority:	High (Level Equivalent: 3)
Cost:	0.25 FTE staff per local government. Also, King County Department of Development and Environmental Services, Code Development Section estimates 0.013 FTE.
Funding Source:	Aquifer Protection Area Fund.

SA-1C Adoption of General Aquifer Protection Policies: King County and the City of Issaquah within the Issaquah Creek Valley Ground Water Management Area will adopt the following policies for the Issaquah Creek Valley Ground Water Management Area:

1. Ground water-based public water supplies should be protected by preventing land uses that may adversely affect ground water quality or quantity to the extent that the supply of high-quality drinking water to present and future populations might be jeopardized.
2. While protection and sustainable use of ground water based drinking supplies in the Issaquah Creek Valley Ground Water Management Area is preferred over importing water from sources outside of the Ground Water Management Area, importing water will not be prohibited if necessary to support urban development within the Urban Growth Area.
3. King County will protect the quality and quantity of ground water by implementing King County Comprehensive Plan policies U-206, NE-335 and NE-336, which state:

U-206 Environmental standards from urban development should emphasize ways to allow maximum permitted densities and uses of urban land. Mitigating measures should be encouraged to serve multiple purposes, such as drainage control, ground water recharge, stream protection, open space, cultural and historic resource protection and landscaping. When technically feasible, standards should be simple and measurable, so they can be implemented without lengthy review processes.

NE-335 In making future zoning and land use decisions that are subject to environmental review, King County shall evaluate and monitor ground water policies, their implementation costs, and the impacts upon the quantity and quality of ground water. The depletion or degradation of aquifers needed for potable water supplies should be avoided or mitigated, and the need to plan and develop feasible and equivalent replacement sources to compensate for the potential loss of water supplies should be considered.

NE-336 King County should protect ground water in the Rural Area by:

a. Preferring land uses that retain a high ratio of permeable to impermeable surface area and that maintain or augment the infiltration capacity of the natural soils; and

b. Requiring standards for maximum vegetation clearing limits, impervious surface limit, and, where appropriate, infiltration of surface water. These standards should be designed to provide appropriate exceptions consistent with Policy R-216.

4. Well Head Protection Programs will provide direction for focusing intense aquifer protection efforts in those areas, usually urban, where the existing built environment presents very significant risks to public drinking water systems.

Who:	King County Office of Strategic Planning and the City of Issaquah
Priority:	High (Level Equivalent: 3)
Cost:	King County Office of Strategic Planning: 0.04 FTE
Funding Source:	General agency funds

SA-1D Enhanced Environmental Review to Protect Aquifers: King County and the City of Issaquah will jointly develop guidance to assist environmental reviewers to:

- Identify proposed development that may significantly impact ground water in physically susceptible and recharge areas as mapped by the Ground Water Management Plan;
- Recognize and require adequate information to assess impacts upon ground water; and,
- Recognize and propose effective mitigation.

Who:	King County Department of Natural Resources for the approval of the Management Committee.
Priority:	High (Level Equivalent: 3)
Cost:	0.5 FTE at King County Department of Natural Resources. City of Issaquah to be determined.
Funding Source:	Aquifer Protection Area Fund.

SA-1E Define and Map Ground Water Susceptibility Areas: King County and the City of Issaquah will place a priority on implementation of the Issaquah Ground Water Management Plan in physically susceptible and recharge areas. These areas include areas physically susceptible to ground water contamination and aquifer recharge areas. Areas of unusual susceptibility to ground water contamination (important to identify to protect ground water quality) are defined and mapped according to the following criteria:

- *Soil permeability* - Soil units are defined by the Natural Resources Conservation Service in the Soil Survey of the King County Area (Soil Conservation Service, 1973). Soils were given a 25% rating. A full rating was not used, since that would duplicate surficial geology in the mapping equation. Soils that are excessively drained or are somewhat excessively drained are rated high; soils that are well drained or moderately well drained are rated moderate; and soils that are somewhat to very poorly drained are rated low.
- *Geologic materials* - United States Geological Survey maps provide information on surficial geology. A clean sand and/or gravel is rated high, tight silt or clay is rated low, and materials (mixtures of sand, silt or clay) that fall between the two categories are rated as moderate.
- *Depth to water* - Driller's logs and previous investigations are used to determine depth to water. Existing water table elevation maps are used, if available. High (0-25 feet from surface), moderate (26-75 feet from surface), and low (greater than 75 feet from surface) contamination potentials are assigned. Depth to water greater than 100 feet would assume that a relatively permeable layer would likely exist above the water table.

Areas receive overall ratings by use of an overlay map that incorporates ratings from the three physical parameters. All parameters are assigned equal weight. A combined rating score is assigned to each portion of the mapped area. Determination of whether an area has a high, moderate, or low susceptibility is then made by conservative interpretation of the combined rating. For example, a combined rating score of high-high-moderate-moderate is given an overall rating of high while a rating of high-moderate-low-low is given an overall rating of moderate. A composite map shows the physically susceptible areas rated high, moderate, and low.

The maps produced for the Ground Water Management Plan and for the King County Comprehensive Plan were based on available information. Both the Ground Water Management Plan and the Comprehensive Plan specify that the maps will be refined as new information becomes available. Identification and protection of areas important for ground water quantity and quality is required by the Growth Management Act. King County expects to meet this requirement by starting with the maps currently produced, and adding information such as new information from wellhead studies and environmental evaluations, so that they are useful for planning and ground water protection. A recharge map to address ground water quantity concerns needs to be developed.

Who:	King County, the City of Issaquah. The lead agency should be responsible for dissemination of reliable data about the location of the recharge areas.
Priority:	High (Level Equivalent: 3)
Cost:	No initial cost; task is accomplished by concurring with Ground Water Management Plan. King County expects costs associated with further refinement of the maps. King County Department of Development and Environmental Services, Code Development Section: 0.06 FTE.
Funding Source:	General agency funds would be used to disseminate mapped information. The Aquifer Protection Area Fund would support further revision of the maps.

Issue 2 Well Head Protection: Public water system purveyors are required to meet federal wellhead protection requirements to delineate and adopt measures to protect well head protection areas. The Ground Water Management Plan will fulfill some wellhead protection needs by providing educational material and general ground water protection strategies. However, specific strategies to provide an increased level of protection to public water systems will be required by the Washington Department of Health. To accommodate the needs of hundreds of large system purveyors, King County needs the purveyor assistance in developing a basic approach to wellhead protection in the unincorporated areas.

SA-2 Basic Well Head Protection Program: King County, the City of Issaquah, public water system purveyors, and others jointly facilitate wellhead protection in King County by assigning to the Ground Water Management Committee the following tasks:

1. Develop and recommend, for adoption by the Metropolitan King County Council, strategies that King County could implement to aid in wellhead protection.

2. Incorporate minimum state wellhead protection requirements into the Ground Water Management Plan to allow for their implementation to be eligible for funding by the Aquifer Protection Area Fund.

This recommendation is supported by King County Comprehensive Plan policy NE-333 which provides for: "...b. Developing a process by which King County will review, and implement, as appropriate adopted Wellhead Protection Programs in conjunction with cities and ground water purveyors...."

Task 1. Develop minimum wellhead protection requirements and recommend for adoption by the Metropolitan King County Council.

Who:	King County, the City of Issaquah, and public water system purveyors via the Management Committee.
Priority:	High (Level Equivalent: 2)
Cost:	Included in the cost of participation in the Management Committee. See Chapter 3, Table 3.8.1 for estimate. King County Department of Development and Environmental Services, Code Development Section: 0.56 FTE, King County Department of Natural Resources 0.5 FTE.
Funding Source:	Aquifer Protection Area Fund.

Task 2. Incorporate minimum wellhead protection requirements into the Ground Water Management Plan.

Who:	King County, the City of Issaquah, and public water system purveyors via the recommendations of the Management Committee.
Priority:	High (Level Equivalent: 2)
Cost:	Included in the cost of participation in the Management Committee. See Chapter 3, Table 3.8.1 for estimate.
Funding Source:	Aquifer Protection Area Fund.

Issue 3 Sole Source Aquifer Petition: Sole Source Aquifer designation enhances local ground water protection efforts by increasing the level of public concern about the aquifer and by providing additional protection when certain types of development are being reviewed by permitting agencies. A petition must be prepared and submitted to the Environmental Protection Agency for review and approval to obtain the designation.

SA-3 Submit Sole Source Aquifer Petition: The King County Department of Natural Resources will prepare and submit to the Environmental Protection Agency a petition for federal Sole Source Aquifer designation for the Issaquah Creek Valley Aquifer.

Who:	King County Department of Natural Resources
Priority:	High (Level Equivalent: 1)
Cost:	0.25 FTE.
Funding Source:	Aquifer Protection Area Fund.

2.2.2 Data Collection and Management Program

Long-term data collection of ground water quality and quantity, precipitation and stream flow is necessary for the continued development of a conceptual characterization of ground water hydrology within the ground water management area. Further data collection and analysis is needed along with an expanded network of existing and new wells for the development of a conceptual model of groundwater hydrology. The collected data needs to be entered into a database and analyzed to provide useful information for making resource management decisions. Data is collected and analyzed so that state and local agencies can:

- Determine water resource trends in ground water quality and quantity;
- Make informed decisions on such issues as land use and water rights;
- Plan for peak water use and population growth impacts;
- Track development of new water sources;
- Develop and refine a water resource model;
- Respond to data requests from water agencies and other interested parties; and,
- Respond to incidents such as water level declines.

Issue 1 Data Collection, Analysis and Management: Ground water resource data gathered on a long-term basis enables land and water use agencies to make informed decisions. Data collection and analysis to date has been used to develop a general characterization of ground water hydrology. Additional data collection and analysis is needed to refine characterization of the aquifer and to manage the resource.

DCM-1 Data Collection, Analysis, and Management Program: The King County Department of Natural Resources will develop and implement a data collection and management program that:

1. Collects data needed according to the Data Collection List.
2. Continues data entry into the database, manages the data for quality control and applicability to analysis techniques, shares the data with other agencies and ensures data compatibility with other data collection efforts.
3. Analyzes the data to:
   a. refine a conceptual understanding of the ground water hydrology determination of the available resource,
   b. protect the resource from depletion and contamination,
   c. assess the impacts of land use on the resource, and

d. determine if a numerical model is needed or would be useful for ground water management.

Task 1. Tag existing and new wells where found.

Who:	Seattle-King County Health Department, Ecology, City of Issaquah, Sammamish Plateau Water and Sewer District, well drillers and volunteers.
Priority:	High (Level Equivalent: 1)
Cost:	0.5 FTE for Seattle-King County Health Department/yr. City of Issaquah and Sammamish Plateau Water and Sewer District: To be determined
Funding Source:	Aquifer Protection Area Fund

Task 2. Monitoring of water quality, water level, precipitation, and stream discharge parameters. Where water level declines or ground water contamination is observed, appropriate action would be taken. Conduct other activities listed in the attached table.

Task 3: Enter data collected into the King County Department of Natural Resources database. Maintain database and provide this data regularly to Ecology, the City of Issaquah and Sammamish Plateau Water and Sewer District.

Task 4: Develop a ground water hydrology model

Who:	King County Department of Natural Resources
Cost:	King County Department of Natural Resources 1 FTE/yr. Non-FTE costs: $170,340.
Priority:	High (Level Equivalent: 1)
Funding Source:	Aquifer Protection Area Fund.

DCM-2 Data Collection, Analysis and Management: Ecology: Ecology will input local ground water management area data into Ecology's ground water database.

Who:	Ecology
Cost:	0.06 FTE/yr.
Funding Source:	General Agency Funds

2.2.3 Ground Water Quality and Quantity Issues Associated with Storm Water Management

Past and present storm water management practices account for some ground water quantity and quality problems. Ground water quality may be affected if storm water containing contaminants is recharged intentionally or inadvertently. Also, the amount of precipitation is diverted to surface water when, under natural conditions, it would be recharged to ground water. As a result, there is a decrease in the quantity of water recharged to ground water.

Issue 1 Runoff Versus Recharge: The King County Surface Water Design Manual encourages, but does not require infiltration as a method of storm water management. The Manual requires that there be no increase in peak runoff rates. Potential ground water recharge could be lost to runoff, thereby causing depletion of aquifers. Many cities in Ground Water Management Areas have adopted or use the King County Surface Water Design Manual for reference in their storm water management programs and are, therefore, likely following the same policy towards infiltration.

ST-1 Runoff Versus Recharge: ***Surface Water Design Manual*****:** King County and the City of Issaquah will amend/adopt surface water design manuals to promote that runoff be treated and infiltrated. The treatment should ensure that the infiltrated water will not increase pollutant loading to the ground water. Extreme caution should govern recharge and infiltration policies and be based on a site-by-site evaluation. No net reduction of recharge in any new development or redevelopment in the most physically susceptible and recharge areas will be the guiding policy.

Who:	King County and the City of Issaquah
Priority:	High (Level Equivalent: 1)
Cost:	To be determined.
Funding Source:	City of Issaquah and King County general funds.

Issue 2 Ground Water Quality Concerns: Numerous studies have demonstrated that nonpoint source pollution is a major contributor to ground water degradation. Water quality controls and infiltration of storm water will increasingly be used to reduce nonpoint source pollution effects upon both surface and ground water resources. Technology associated with these practices is in the early stages and long-term effects on ground water quality are unknown. While water quality controls will improve the quality of the water discharged to the ground, the increasing emphasis on infiltration poses risks. Infiltration will be employed most often in areas with glacial and alluvial soils associated with recharge areas. Regardless of the comprehensiveness of new requirements, treatment systems will sometimes fail for a variety of reasons and they cannot be expected to function optimally at all times. Additionally, nonpoint source pollution that is not borne by storm water will infiltrate and reach ground water regardless of storm water management techniques.

ST-2A Ground Water Quality Concerns - Facility Requirements: King County and the City of Issaquah within the Issaquah Creek Valley Ground Water Management Area will require that all types of stormwater facilities be designed to protect ground water quality. The Ground Water Advisory Committee supports the changes to the King County *Surface Water Design Manual*, to meet the State's requirements.

ST-2B Facility Study: King County and the City of Issaquah will jointly sponsor study of the effectiveness of the facilities described in ST-2A.

ST-2C Facility Monitoring: King County will monitor a sample of the facilities described in ST-2A in actual use and prepare a report of findings.

Who:	King County and City of Issaquah.
Priority:	High (Level Equivalent: 2)
Cost:	Costs for regulation change to be provided by the City of Issaquah; the study needs to be developed to determine its costs.
Funding Source:	General agency funds.

Issue 3 Education: Considerable effort is underway to educate the public on the prevention of nonpoint pollution and improper disposal of hazardous materials. Educational strategies are found in the Education Program.

Issue 4 Coordination Between Surface and Ground Water Planning Efforts: Surface and ground water planning efforts should be effectively coordinated to make the best use of limited resources.

ST-4A Coordination Between Surface and Ground Water Planning Efforts - Ecology Programs: Ecology will assess surface and ground water quality planning programs to determine how they could be combined or coordinated in a way that is both scientifically justified and which provides for greater efficiency.

Who:	Ecology
Priority:	Medium (Level Equivalent: 12)
Cost:	0.32 FTE
Funding Source:	General agency funds.

ST-4B Coordination Between Surface and Ground Water Planning Efforts - Puget Sound Water Quality Action Team: The Puget Sound Water Quality Action Team recognizes that surface and ground water form a continuous and dynamic system which must be comprehensively protected. The Puget Sound Water Quality Management Plan should be revised to address all water quality issues in the Puget Sound drainage basin, including ground water.

Who:	Puget Sound Water Quality Action Team
Priority:	Medium (Level Equivalent: 14)
Cost:	To be determined.
Funding Source:	General Agency Funds.

ST-4C Coordination Between Surface and Ground Water Planning Efforts - King County: King County will assess its water resource planning efforts to determine how to effectively coordinate them to provide the best possible protection of water resources. The Metropolitan King County Council recognized this need when they transferred the ground water program into the Water and Land Resources Division of the Department of Natural Resources. Water and Land Resources and the Wastewater Division staff are

currently assessing how to best provide comprehensive water resource management (i.e., surface water, ground water, and sewage treatment) during the creation of the new Water Resources Division.

Who:	King County Department of Natural Resources
Priority:	High (Level Equivalent: 3)
Cost:	None, efforts are currently underway
Funding Source:	General funds should be used to cover staff time spent in this effort.

Issue 5 Assessment of Existing Storm Water Facilities: Existing storm water management facilities (or the lack of facilities) in the most physically susceptible areas and Well Head Protection Areas may pose a risk to ground water quality and the population served by public water systems. Some facilities were constructed when there was little concern about ground water quality. Of particular concern are dry wells used in commercial and industrial areas. Alternatively, there are areas in which no storm water facilities other than ditches were constructed to accompany development. This situation may be found in areas with highly permeable soils that were developed prior to current regulations. Storm water enters ditches in these areas and rapidly infiltrates without benefit of treatment.

ST-5 Assessment of Existing Storm Water Facilities in the Most Physically Susceptible and Recharge Areas: King County and the City of Issaquah will assess the adequacy of storm water facilities in the most physically susceptible areas and Well Head Protection Areas to protect ground water quality and to give these areas high priority for water quality facility retrofit as warranted. This includes an inventory of facilities in areas, assign ranking depending on facility type, and identifying which facilities should be retrofitted and develop schedule.

Who:	King County Water and Land Resources and the City of Issaquah
Priority:	High (Level Equivalent: 3)
Cost:	To be determined.
Funding Source:	General agency funds; this activity can be included in the current inventory of facilities.

Issue 6 Roadway Runoff: The State Highway Runoff Program provides for improved water quality and quantity controls for storm water runoff from new and existing state highways. The King County *Surface Water Design Manual* requires water quality and quantity controls for new roadways in King County. Many cities have similar requirements. However, state and local programs may not address quality and quantity problems associated with existing roadways. Existing contamination problems may be identified via Basin Plans developed by King County Water and Land Resources Division in cooperation with cities (and via other processes) to identify needed capital improvements. King County and cities then address the problems identified as funding allows.

ST-6 Roadway Runoff: King County and the City of Issaquah will:

- Direct their transportation or public works departments to give high priority to physically susceptible areas and wellhead protection areas when identifying and correcting water quality problems associated with existing roadways, and
- Develop a program to retro-fit existing structures, as required by the National Pollution Discharge Elimination System, which will require stormwater quality and quantity controls comparable to new regulations when conducting major renovation or widening of roads.

King County Department of Transportation, Road Services Division does not concur with the first paragraph under ST-6 because ground water criteria are not currently factored into the process for allocating resources. This recommendation is placed in the Unfinished Agenda, noting Department of Transportation concerns.

Issue 7 Soil Amendment: Glacial till soils impede the infiltration of precipitation and are associated with relatively high runoff volumes subsequent to clearing of natural vegetation. Pesticides and nutrients used in landscaping may be carried off-site with runoff instead of being retained in the soil where they can be used or broken down by natural processes. Contaminated runoff is carried to aquifer recharge areas where it may contribute to ground water contamination. Glacial outwash soils and railroad ballast also present problems in relation to pesticides and other contaminants. These chemicals may penetrate well beyond the root zone due to poor attenuation capability of the soil resulting in contamination of shallow aquifers.

ST-7 Soil Amendment Study: King County and the City of Issaquah will jointly evaluate the ground water quality and quantity benefits of soil amendment. Soil amendment requirements shall be implemented if the proposed research proves to be a practical method of improving water quality, increasing infiltration, and reducing storm water runoff.

Who:	King County, City of Issaquah, Center for Urban Water Resources, University of Washington.
Priority:	Medium (Level Equivalent: 11)
Cost:	To be determined with input from Center for Urban Water Resources Management. Estimate 0.24 FTE for the King County Department of Natural Resources.
Funding Source:	Centennial Clean Water Funds should be sought. Local governments would have to pool resources for matching funds. Other grant sources may also need to be explored. Alternatively, local governments could pool resources to fund the study.

2.2.4 Ground Water Education Program

Providing citizens with information on the ground water resource and protection may be a particularly effective protection method. Understanding, caring and commitment are

needed to protect a finite basic resource that is affected by a wide variety of activities. Although regulations may help, groups of informed citizens actively caring for ground water under their own communities might be more effective. Providing technical assistance will not address all the concerns, but it will entice some community members to take individual action.

A number of education programs are focused on individual sources of contamination. However, no comprehensive ground water education program focuses on the following tasks:

- Aid in developing resource protection messages that are consistent regardless of the specific education program;
- Coordinate with other resource protection programs that focus on a specific issue, such as solid waste, hazardous waste, and storm water management;
- Develop specific education activities and materials for point and nonpoint sources of contamination that do not have their own individual programs;
- Support research on ground water resource; and
- Encourage and promote conservation.

A comprehensive program would coordinate existing environmental education programs to develop consistent messages about the ground water resource and ground water protection. This component would be done by briefing environmental educators about King County's ground water system and supporting joint programs. The program would respond to local ground water quality and quantity concerns not already covered by other programs, and provide assistance for local planning efforts and other ground water protection projects.

Issue 1 Existing Educational Programs: Considerable effort is underway to educate the public about the prevention of nonpoint pollution, conservation, well construction and improper disposal of hazardous materials. Agencies or jurisdictions involved include King County, the City of Issaquah, Puget Sound Water Quality Action Team, Ecology, King Conservation District, Natural Resources Conservation Service, public and private schools and others. Existing educational materials need to contain ground water resource protection information.

ED-1 Existing Education: King County and City of Issaquah will jointly carry out a ground water education program that reviews existing educational activities and make use of these programs when applicable. The King County Department of Natural Resources will review applicable educational efforts underway to determine whether the protection of ground water is emphasized. The King County Department of Natural Resources will seek the cooperation of the parties involved to include ground water information and concerns in the educational programs. The specific elements of the program are:

- Existing educational program content will be reviewed for agreement with Issaquah Creek Valley Ground Water Management Plan policies and goals. The King County Department of Natural Resources will review the current educational programs of the Natural Resources Conservation Service, Cooperative Extension, and others to ensure that the Issaquah Creek Valley Ground Water Management Plan goals and policies are reflected.

- The Local Hazardous Waste Management Program in King County will coordinate with the Household Hazardous Waste Education Committee to include information about the risks to ground water associated with the disposal of household hazardous wastes to on-site sewage systems as part of their household hazardous waste educational activities.

- King County, the City of Issaquah and the Sammamish Plateau Water and Sewer District will work with local nurseries, Washington State University Cooperative Extension Service and the Conservation Districts to promote the availability of appropriate seed stocks, plants, and materials to achieve xeriscaping (use of low water-use plants).

- The ground water education program will support conservation education efforts in the schools, and for the general public, as described in the Interim Guidelines (Interim Guidelines for Public Water Systems Regarding Water Use Reporting, Demand Forecasting Methodology, and Conservation Programs). These would include, but not be limited to, the items listed under Public Education in Section IV of the Implementation of the Guidelines.

- King County will educate residents about landscaping practices that promote aquifer recharge through an informational brochure prepared by Cooperative Extension and the King County Department of Natural Resources.

- In regards to storm water management, this effort will ensure that educational activities are adequate to communicate to the public: (1) how ground water may become contaminated via surface water pollution, and (2) ways in which ground water recharge may be encouraged.

- The Seattle-King County Health Department will coordinate measures to increase public awareness about the potential impacts of discharging household chemical products to an on-site sewage system. Such measures would be an extension of activities scheduled as part of the Local Hazardous Waste Management Plan.

- Educational efforts would complement and combine with current efforts of the King County Department of Natural Resources, Cooperative Extension, and the Conservation District. This information could be disseminated through the Master Gardener and other programs of Cooperative Extension. Awareness of the

problem of reduced aquifer recharge may increase responsibility and concern for aquifer recharge areas in the community. Educational programs on how landscaping practices can affect aquifer recharge could be coupled with education on the effects of pesticide and herbicide use on ground-water quality. A discussion of proper disposal of household hazardous wastes could be included. Landscaping tips will include a discussion of native vegetation and its role in facilitating moisture infiltration.

- Coordinate with and support Ecology's well identification, well construction, proper well maintenance, contamination sources, and well decommissioning projects. Informed and involved well owners and other community members are probably more likely to comply with the well construction and decommissioning regulations. Ways to inform and involve well owners might include distributing a questionnaire about wells to homes in the community; developing and distributing an educational brochure for homeowners; and supplementing the brochure with community educational programs. The questionnaire should be designed to elicit the number of wells on each property, the construction methods used, and the number of wells that require decommissioning. The brochure should include recommended practices and legal requirements for well construction and decommissioning. It should also include the reasons why practices such as sealing the well are both advisable and required by law so that homeowners are knowledgeable before they make plans to construct or decommission a well. The education program will cover the same information, and provide the public with an opportunity to ask individual questions.

Issue 2 New Educational Elements: Several issues do not have an existing education program upon which to build. These have been identified through the Ground Water Advisory Committee's consideration of ground water protection issues. These specific elements need to be adopted as part of the education program.

ED-2 New Educational Elements: King County and the City of Issaquah will jointly carry out a ground water education program that will develop specific educational activities and materials covering sources of contamination. The King County Department of Natural Resources will report to the Management Committee on the adequacy of existing educational programs to address ground water concerns. This report will include proposed changes as a result of review of existing educational programs. The King County Department of Natural Resources will then develop a supplemental educational program to address identified deficiencies, if necessary and present it to the Management Committee for review and adoption. New educational programs will be developed and implemented according to the adopted Ground Water Advisory Committee actions below:

1. King County will develop and carry out a public education program intended to increase the awareness of proper on-site sewage system operation and

maintenance, including the risks associated with disposal of hazardous wastes in such systems.

2. King County and the City of Issaquah will jointly educate homeowners and owners of exempt tanks regarding tank abandonment requirements of the Uniform Fire Code through the Issaquah Creek Valley Ground Water Management Plan Education Program.

3. Information about the relationship between solid waste disposal and ground water will be included in the educational program.

ED-3 New Education Elements - Volunteer Program. Volunteers will, under the direction of an assigned King County Department of Natural Resources staff person, provide an education resource for local schools, community groups, and the public at large, on issues concerning ground water. Responsibilities of these volunteers should include but not be limited to:

- Acquiring a basic understanding of hydrology, geology, and public health issues affecting ground water quality and quantity.
- Assisting the King County Department of Natural Resources staff in identifying available educational resources, materials and programs that address ground water issues and either coordinate with, incorporate or direct people to these programs.
- Assisting the King County Department of Natural Resources staff in developing a basic curriculum guide to be used by the speakers which is kept up to date with the current practices of ground water management.
- Meet with the King County Department of Natural Resources staff, local water district staff and local government on a regular basis to identify new concerns and current issues concerning water quality and quantity.

Who:	King County Department of Natural Resources, City of Issaquah, Sammamish Plateau Water and Sewer District, under direction of the Management Committee.
Priority:	High (Level Equivalent: 1)
Cost:	0.5 FTE per year City of Issaquah, 0.5 FTE, Sammamish Plateau Water and Sewer District, 0.04 FTE.
Funding Source:	Aquifer Protection Area Fund.

2.3 Programs To Protect Ground Water Quality

The Ground Water Advisory Committee researched ten subject areas that could potentially affect ground water quality. These include: hazardous materials management, underground storage tank management, on-site sewage treatment and disposal system use, use of pesticide and fertilizer, well construction and decommissioning, sewer pipes, solid waste landfills, burial of human remains, sand and gravel mining, and biosolids and

sewage effluent. The goals, under which individual management strategies were developed for these subject areas, are:

Hazardous Waste Management. To ensure that ground water is not contaminated through improper management of hazardous wastes.

Hazardous Waste Contamination Sites. To assist federal and state cleanup programs in: discovering hazardous waste disposal sites in King County, and communicating to the public, the health risks associated with ground water pollution at those sites.

Hazardous Material Spills. (1) To ensure that spills of hazardous materials are prevented. (2) To be adequately prepared to respond to spills of hazardous materials to avoid ground water contamination.

Underground Storage Tank Management. To ensure that underground chemical and fuel storage tanks and piping systems are managed adequately to prevent contamination of ground water.

On-Site Sewage Treatment and Disposal System Use. To promote on-site sewage treatment and disposal practices that are effective in protecting ground water resources from possible adverse impacts.

Use of Pesticide and Fertilizer. To prevent ground water contamination from the use of pesticide and fertilizer.

Well Construction and Decommissioning. To protect the quality of ground water in the county by ensuring that proper well construction and decommissioning procedures are followed.

Sewer Pipes. To prevent the degradation of ground water which may be caused by waste water leaking from gravity sewer pipes and side sewers, and to prevent the loss of water through infiltration to gravity sewer pipes and side sewers.

Solid Waste Landfills. To prevent the occurrence of ground water contamination problems that are associated with the operation of solid waste disposal facilities.

Burial of Human Remains. To prevent the degradation of ground water from embalming fluids, disintegrating metal caskets, decaying human remains and other materials associated with processing bodies for burial or cremation.

Sand and Gravel Mining. To ensure that regulatory programs are adequate to prevent adverse effects upon ground water quality due to sand and gravel mining operations, including reclamation.

Biosolids and Sewage Effluent. To provide assurance that the ground water in King County will not be contaminated by the reuse of wastewater effluent.

2.3.1 Ground Water Protection Issues Associated with Hazardous Materials Management

Industrial and commercial processes produce and use hazardous substances. Hazardous materials use is not, however, limited to industries and businesses. They are widely available and used by almost everyone. The impact of these substances on the environment, particularly ground water, is often determined by the management practices of the businesses and individuals that use them.

Issue 1 State Hazardous Waste Plan: The Washington State Hazardous Waste Plan has identified many deficiencies in the existing state program to regulate hazardous waste. These problems were identified by an Ecology-sponsored advisory committee made up of business leaders, government agency staff and elected officials, environmentalists, consulting firms, and educators over a period of two years. Ecology has stated that it is committed to carrying out the recommendations developed by the committee. Implementation of the recommended strategies is necessary for the state to manage hazardous wastes in a manner that will protect ground water.

HM-1 State Hazardous Waste Plan - Implementation: The Ground Water Advisory Committee adopts the following resolution: "The Ground Water Advisory Committee supports the findings and recommendations of the Washington State Hazardous Waste Plan. The Ground Water Advisory Committee requests that Ecology and the Washington Legislature fund and carry out the provisions of the Plan with a sense of urgency in recognition of the threat posed to ground water from hazardous wastes." The Ground Water Advisory Committee will communicate this resolution to the Director of Ecology, the Assistant Director for Waste Management, and to the Washington Legislature. The request to carry out the solutions recommended by the Hazardous Waste Plan is communicated to Ecology during the review and certification process for the Ground Water Management Plan. No additional action is needed.

Issue 2 Dangerous Waste Management Unit: The Washington Dangerous Waste Regulations require a setback from the dangerous waste management unit to the aquifer of beneficial use. However, no setback is required from the unit to ground water, in general. In effect, the regulations indicate that the dangerous waste management unit may be located in ground water.

HM-2 Dangerous Waste Management Unit Setback - Regulation Amendment: Ecology is requested to amend the Dangerous Waste Regulations (Chapter 173-303 WAC) to require setbacks from the seasonal high ground water level. The request to modify the setback from ground water is communicated to Ecology during the review and certification process for the Issaquah Creek Valley Ground Water Management Plan. No additional action is needed.

Issue 3 Hazardous Waste Facilities Zones: King County has not designated zones in which hazardous waste storage and treatment facilities may be considered. Failure to designate zones will result in preemption by Ecology of the right to interpret local zoning codes for the purposes of siting such facilities. This preemption is not permanent and local jurisdiction is returned upon designation of zones.

Issue 4 Hazardous Waste Contamination Sites - Site Referral and Public Education:

The Washington State Department of Health seeks a cooperative relationship with local health departments in the following areas: (1) referral of possible hazardous waste disposal sites, illness clusters, incidents of contaminated drinking water supplies, and related concerns to the Washington State Department of Health, Office of Toxic Substances; (2) assistance in gathering data in regard to these referrals; (3) public education oriented towards health concerns in relation to hazardous waste sites, including those that may involve contaminated ground water.

HM-4 Hazardous Waste Contamination Sites - Site Referral and Public Education by the Seattle-King County Health Department: The Seattle-King County Health Department, in regard to hazardous waste contamination sites, will provide assistance to the Washington State Department of Health in site discovery including collection of information on site history; and assistance to the Washington State Department of Health in public health information and referral on hazardous waste sites.

Who:	Seattle-King County Health Department.
Priority:	Medium (Level Equivalent: 9)
Costs:	0.10 FTE
Funding Source:	Aquifer Protection Area Fund.

Issue 5 Implementation of the Uniform Fire Code: Article 80 of the Uniform Fire Code is a valuable tool to prevent hazardous material spills in business, industrial, and institutional settings. Two obstacles to comprehensive implementation of Article 80 are:

- Many jurisdictions within the Ground Water Management Areas have not fully developed their hazardous materials programs. They lack adequate staff, training, and enforcement tools to implement Article 80.

- The State Building Code Council has adopted a less stringent version of Article 80 that exempts important hazardous materials from full regulation by the fire services. In addition, some businesses and industries have been exempted from the requirement for Hazardous Materials Management Plans and Hazardous Materials Inventory Statements.

- Some local jurisdictions within Ground Water Management Areas have not passed ordinances to retain the original scope of Article 80.

HM-5 Implementation of the Uniform Fire Code in Physically Susceptible Areas: King County and the City of Issaquah within the Issaquah Creek Valley Ground Water Management Area will:

- Commit staff and funding for comprehensive implementation of Article 80 in both new and existing facilities using both educational and regulatory approaches;
- Propose ordinances for adoption, if they have not already done so, that provide adequate enforcement tools to ensure compliance with Article 80 and that restore the requirements for:
  1. Hazardous Materials Management Plans;
  2. Hazardous Materials Inventory Statements;
  3. Storage requirements for "Carcinogens, irritants, sensitizers, and other health hazard solids, liquids and gases" found in Uniform Fire Code 80.315; and
  4. Emphasize regulatory attention and educational activity in physical susceptibility areas.

The lead agency for implementation of the Ground Water Management Plan will develop criteria for evaluating the hazardous materials management programs of fire services and include an annual evaluation in its regular reports to the Ground Water Advisory Committee and the Ground Water Management Committee. The King County Department of Natural Resources will continue to encourage program development and implementation on an ongoing basis.

Who:	King County Department of Natural Resources.
Priority:	Medium (Level Equivalent: 9)
Costs:	0.50 FTE.
Funding Source:	Aquifer Protection Area Fund.

Funding to implement this action needs to be discussed with the King County Fire Marshal and the City of Issaquah's fire department. The goal of this discussion is to determine whether implementation can be funded by hazardous materials permit fees alone or whether aquifer protection fees should be considered to supplement fire service activities.

Some local governments in King County have already instituted a hazardous materials permit fee as a way to fund their program. This is probably the best long-term solution to hazardous materials regulation. Each jurisdiction will assess its existing program and determine the best means to fund improvements, if needed. Their part of the program would include: hazardous materials program development including ordinances; and hazardous materials program implementation.

Who:	King County Fire Marshal and the City of Issaquah fire department.
Priority:	Medium (Level Equivalent: 9)

Costs: To be determined by each participant.
Funding Source: To be determined by each participant.

Issue 6 Implementation of the Emergency Planning and Community Right-to-Know Act: Most experts conclude that the King County Local Emergency Management Plan does not adequately address ground water issues associated with large chemical spills. The Local Emergency Management Plan has not, to date, considered the locations of sensitive areas, such as aquifer protection areas, in developing emergency response measures. This is in part because of the lack of available information.

HM-6 Implementation of the Emergency Planning and Community Right-to-Know Act in Physically Susceptible and Recharge Areas: King County, as lead agency for the Local Emergency Management Plan, and the City of Issaquah will consider ground water protection in the Local Emergency Management Plan:

- Strengthen coordination between agencies and jurisdictions that might be involved in responding to a major chemical spill;

- A hazard analysis that takes into consideration the locations of physically susceptible areas, wellhead protection areas, Sole Source Aquifers, high recharge areas and public water systems using ground water sources; and

- Firefighting techniques and emergency response techniques that favor ground water protection in physically susceptible and recharge areas;

The King County Department of Natural Resources will:

- Provide maps of physical susceptibility areas and well locations to the King County Office of Emergency Management.

- Provide information about the emergency response techniques necessary to protect aquifers and wells for Local Emergency Planning Committee consideration, and incorporation into the Local Emergency Management Plan.
- Review existing literature and determine the need to contract for a consultant with expertise in this area.

- Develop recommendations for the Office of Emergency Management, as coordinator of the Local Emergency Planning Committee. It is recommended that the lead agency work through the Local Emergency Management Plan process.

The King County Department of Natural Resources will discuss funding to implement this action with the King County Office of Emergency Management Manager and the City of Issaquah's fire department the funding that may be necessary to implement this action. The goal of this discussion is to determine whether implementation can be funded by an industry-supported program. Perhaps a portion of hazardous materials permit fees

referred to in Action HM-5 could be dedicated to supporting the Local Emergency Management Plan. The possibility of supplementing hazardous materials permit fees with aquifer protection fees would be considered.

Task 1. Include ground water protection measures in the Local Emergency Management Plan.

Who: King County Office of Emergency Management in cooperation with the City of Issaquah and other members of the Local Emergency Planning Committees.
Priority: Medium (Level Equivalent: 9)
Costs: To be determined by King County Office of Emergency Management Manager.
Funding Source: To be determined.

Task 2. Communicate the locations of physical susceptibility areas and wells to emergency responders.
Who: King County Department of Natural Resources
Priority: Medium (Level Equivalent: 9)
Costs: Negligible. The work involved in preparing/obtaining maps is accounted for in the Data Collection and Management section.

Task 3. Prepare a report for the Office of Emergency Management on firefighting and emergency response techniques that are protective of ground water for consideration by the Local Emergency Planning Committee.
Who: King County Department of Natural Resources
Priority: Medium (Level Equivalent: 9)
Costs: 0.25 FTE/yr.
Funding Source: Aquifer Protection Area Fund.

Task 4. Develop recommendations regarding firefighting and emergency response techniques for the King County Office of Emergency Management for inclusion in the Local Emergency Management Plan; Ensure that this information is shared with emergency responders throughout King County.

Who: Ground Water Management Committee
Priority: Medium (Level Equivalent: 9)
Costs: Costs are accounted for in the implementation plan for Chapter 3, Table 3.8.1.

Task 5. Report on the progress of development and implementation of the Local Emergency Management Plan in relation to Ground Water Advisory Committee concerns.

Who: King County Department of Natural Resources

Priority: Medium (Level Equivalent: 9)
Costs: 0.08 FTE.
Funding Source: Aquifer Protection Area Fund.

Issue 7 Prevention of Aquifer Contamination Associated With Transportation-Related Hazardous Material Spills: An assessment of the risk of aquifer contamination from transportation-related hazardous material spills in King County could provide information regarding the significance and characteristics of this problem. The information obtained could be used to identify risk reduction strategies.

HM-7A Transportation-Related Hazardous Materials Spills - Purveyor Assessment in Well Head Protection Programs: Purveyors of large public water systems (1,000 connections or more) will assess the risk of transportation-related hazardous material spills in their wellhead protection areas; and develop and implement risk reduction strategies as needed.

Purveyors should indicate whether they intend to address this concern via wellhead protection programs. The lead agency will report to the Management Committee on progress in implementation briefs. It is intended that a progress report will be provided in year three of plan implementation because wellhead protection programs are just beginning to be developed. The Management Committee will review this issue according to its priorities and address it prior to the plan update.

Task 1. Assess the risk of transportation-related hazardous material spills in wellhead protection areas.

Who: Public water system purveyors (1,000 connections or more), including the City of Issaquah.
Priority: Medium (Level Equivalent: 9)
Costs: To be determined by purveyors and the City of Issaquah.
Funding Source: Purveyors' operating budgets, with some Aquifer Protection Area Fund support.

Task 2. Develop and implement risk-reduction strategies as needed.

Who: Public water system purveyors (1,000 connections or more), including the City of Issaquah
Priority: Medium (Level Equivalent: 9)
Costs: To be determined by purveyors.
Funding Source: To be determined by purveyors. Limited use of the Aquifer Protection Area Fund might be available.

HM-7B Transportation-Related Hazardous Material Spills - Management Committee Evaluation: The Ground Water Advisory Committee resolves that it will be the responsibility of the Ground Water Management Committee to evaluate recommendations developed and actions taken by the Washington State Department of

Health's Transportation Engineering Subcommittee to determine whether further actions should be taken on a countywide basis to protect aquifers from transportation-related hazardous material spills.

Who:	Management Committee
Priority:	Medium (Level Equivalent: 9)
Costs:	Costs associated with the functions of the Management Committee are accounted for in Chapter 3, Table 3.8.1. There are no further costs anticipated.

Prepare a brief evaluation of progress made by purveyors in addressing this issue for the Ground Water Advisory Committee and Management Committee.

Who:	King County Department of Natural Resources
Priority:	Medium (Level Equivalent: 9)
Costs:	0.08 FTE /yr.
Funding Source:	Aquifer Protection Area Fund.

2.3.2 Ground Water Concerns Associated with Underground Storage Tank Management

Commercial underground petroleum and chemical storage tanks represent perhaps the most significant potential threat to ground water quality in King County. Leakage from underground storage tanks and associated piping often occurs without detection and even relatively small amounts of certain compounds can have serious adverse impacts on ground water quality. Once released from an underground storage tank, some volatile organic compounds and petroleum products can rapidly migrate to ground water.

The precise number of underground storage tanks that are located in King County is not known. However, Ecology estimates that at least 6,550 such tanks are currently in operation, not including home heating oil tanks. Underground storage tanks are regulated by federal, state, and local governments. Private sector pressures from insurance and lending institutions also bring increasing pressure to bear upon owners and operators of underground storage tanks to install and maintain systems in a manner which reduces liability risks by avoiding spills.

Leaking underground home heating oil tanks may present a threat to ground water quality. Both federal and state regulations adopt a less aggressive approach to regulation of heating oil tanks, however, because of differences in the constituency and migration of fuel oils in the soil.

Potential problems associated with home heating oil tanks include leakage from operating tanks and releases from improperly abandoned tanks containing residual product. Many of the existing home heating oil tanks within King County are likely to be bare steel tanks

without cathodic protection and, as such, a large percentage may be leaking or will leak in the future.

Issue 1 Augment State Underground Storage Tanks Program: The underground storage tank management program administered by Ecology does not have the resources to field check and monitor for compliance with regulations.

UST-1A Augment State Underground Storage Tanks Program - Designation As Environmentally Sensitive Area Under Chapter 90.76 RCW: King County Department of Natural Resources will prepare a petition to Ecology to designate the Issaquah Creek Valley Ground Water Management Area as an Environmentally Sensitive Area under Chapter 90.76 RCW Underground Storage Tanks for the Metropolitan King County Council and City of Issaquah's consideration.

An Environmentally Sensitive Area designation under authority of Chapter 90.76 RCW is not the same as an Environmentally Sensitive Area designation under Chapter 197-11-908 WAC of the State Environmental Policy Act; although, a single area could be designated as an Environmentally Sensitive Area under both Chapter 90.76 RCW and SEPA. Designation under RCW 90.76 affects only the construction and operation of underground storage tanks while designation under SEPA can affect a much broader range of land-use activities.

UST-1B Augment State Underground Storage Tanks Program - Inspection: King County Department of Natural Resources, in conjunction with King County Department of Development and Environmental Services, should prepare a program and related ordinances to enhance the current inspection of underground storage tank installation and removal in Environmentally Sensitive Areas to include the relevant requirements of Chapter 173-360 WAC Underground Storage Tank Regulations, for the Metropolitan King County Council and City of Issaquah's consideration.

Task 1: Prepare and submit a petition to designate the Issaquah Creek Valley Ground Water Management Area as an Environmentally Sensitive Area. After Environmentally Sensitive Area designation, there may be additional work, such as publicity, mapping, and notifying affected agencies.

Task 2: To enhance the current inspection program governing underground storage tank installation and removal in Environmentally Sensitive Areas so that it includes the relevant requirements of Chapter 173-360 WAC Underground Storage Tank Regulations, the following steps are needed:

- Determine local regulatory authority.
- Develop elements of an enhanced program, including training and evaluation.
- Determine role of local agencies in implementation. For example, King County Fire Marshal's office and local fire service jurisdictions could

assume responsibility for underground storage tank management, provided that they have the capacity.

- Amend ordinances as necessary to implement program.

Task 3: Develop and implement a training program for inspectors concerning additional requirements of the Underground Storage Tank Regulations so they can carry out the inspections referred to in Task 2. The Management Committee must decide who is to provide this training. This program includes determining the additional training needed, identifying inspectors in need of this training, and training all inspectors within a given time frame.

Task 4: Determine how to modify local program based upon Ecology's annual reports evaluating the state of the underground storage tank program and an annual review of the effectiveness of local programs. Evaluation methods need to be developed.

Who:	Tasks 1, 2, 4: King County Department of Natural Resources in conjunction with King County Department of Development and Environmental Services Task 3: Management Committee to determine.
Priority:	High (Level Equivalent: 5)
Cost:	Minimum King County Department of Natural Resources staff: 0.5 FTE for three years
Funding Source:	The enhanced local program is funded by industry in the form of increases in current inspection fees and supplementary annual tank fees. The latter may be used to pay for training of inspection staff. Other tasks could be funded through the Aquifer Protection Area Fund.

UST-1C Augment State Underground Storage Tanks Program - Disclosure and Secondary Containment: King County Department of Natural Resources will prepare an ordinance, for Metropolitan King County Council consideration, about underground tanks. The ordinance should contain the following provisions: disclosure at the time of sale of any property in King County of the number, location, and legal status of existing underground fuel and chemical storage tanks; and, require secondary containment for new tanks.

Who:	King County Department of Natural Resources
Priority:	Medium (Level Equivalent: 10)
Cost:	0.08 FTE
Funding Source:	Aquifer Protection Area Fund.

Issue 2 Exempt Tanks: Chapter 173-360 WAC Underground Storage Tank Regulations are reactive in some respects. The regulations focus on monitoring and post-leak detection, rather than prevention of leaks. Construction and monitoring requirements still

allow leaks and consequently contamination of the environment. Additionally, certain classes of underground storage tanks are partially or completely exempt from federal and state regulation.

UST-2A Exempt Tanks - Secondary Containment: The King County Department of Natural Resources will prepare an ordinance for the Metropolitan King County Council's consideration requiring secondary containment for underground chemical storage tanks as defined by Chapter 173-360-120 WAC and for the following exempt or deferred tanks: heating oil tanks of all sizes and motor fuel tanks of 1,100 gallons or less.

Task 1: The Management Committee needs to determine who would enforce this ordinance.

Task 2: Prepare an ordinance for the Metropolitan King County Council's (or other appropriate body) consideration requiring secondary containment for underground storage tanks (as in Chapter 173-360-120 WAC) and for exempt tanks.

Who:	King County Department of Natural Resources, under Management Committee advisement.
Priority:	High (Level Equivalent: 6)
Cost:	King County Department of Natural Resources, 0.08 FTE.
Funding Source:	Aquifer Protection Area Fund. Plan review by fire protection agencies would be fee supported.

UST-2B Exempt Tanks - Tested for Integrity: The King County Department of Natural Resources will prepare an ordinance on underground tanks for the Metropolitan King County Council's consideration requiring that all underground fuel and chemical storage tanks without secondary containment that are in use and exempt from the state Underground Storage Tank Regulations must be tested for integrity at regular intervals by qualified personnel and tagged to either allow or prohibit future product delivery.

Who:	King County Department of Natural Resources
Priority:	High (Level Equivalent: 6)
Cost:	0.08 FTE.
Funding Source:	Aquifer Protection Area Fund.

Issue 3 Heating Oil Tanks. Home heating oil tanks may not be maintained or abandoned properly. Homeowners often are unaware of requirements for the proper operation and abandonment of underground heating oil tanks. There are currently no programs in place to educate citizens or to provide incentives for proper operation and abandonment. Also, homeowners are reluctant to abandon tanks properly and under permit due to the expense associated with remediating a site with contaminated soil.

UST-3 Heating Oil Tanks - Education: King County and the City of Issaquah will jointly educate homeowners and exempt tank owners on the tank abandonment requirements of the Uniform Fire Code through the Issaquah Creek Valley Ground Water Management Plan Education Program.

2.3.3 Ground Water Quality Issues Related to On-Site Sewage Treatment and Disposal System Use

Ground water contamination associated with domestic on-site sewage system effluent can involve a number of contaminants including nitrate, bacteria, viruses, and trace organic chemical compounds. Nitrate is often considered the most significant contaminant associated with domestic wastewater since it is highly resistant to removal from treatment mechanisms present in the soil profile. Bacteria and viruses can be attenuated during migration through a few feet of fine to medium textured soils provided that unsaturated flow conditions can be maintained. If on-site sewage systems are improperly designed or constructed, installed in inadequate soils, used at too high of a development density, or used to dispose of non-domestic wastewater, they can adversely affect surface and ground water quality and public health.

Issue 1 Nitrate Concerns: The designs of most on-site sewage treatment and disposal systems installed in Type 1 soils (coarse sands or coarser) prior to April 1987 (the effective date of King County Board of Health Title 13) did not incorporate enhanced treatment technology. These systems often support development densities that exceed one residential unit per acre. The poor treatment efficiency of conventional on-site sewage systems installed in coarse textured soils suggests a potential for nitrate contamination of underlying ground water, especially in areas where the density of on-site sewage systems is relatively high. Nitrate concentrations may build up in the zone of contribution to public water systems to unacceptable levels resulting in irreversible loss of drinking water supplies.

OS-1 Nitrate Concerns in Well Head Protection Programs: The Ground Water Advisory Committee requests that the following be considered by the Management Committee: (1) Require that Well Head Protection Programs for systems serving over 1,000 connections incorporate nitrate loading analysis in determining the level of risk to public water supplies associated with on-site sewage treatment and disposal systems and other sources of nitrate; and (2) Work with land use authorities to require alternative methods of sewage treatment and disposal where nitrogen levels are found to be unacceptable (more than 5 mg/L).

Who:	Management Committee
Priority:	High (Level Equivalent: 2)
Cost:	To be determined.
Funding Source:	Aquifer Protection Area Fund.

Issue 2 Hazardous Materials: Some types of commercial, industrial, and institutional facilities use or store hazardous materials in their day-to-day operations or dispose of unregulated or small quantities of hazardous wastes. In these cases, hazardous materials or wastes may be discharged to on-site sewage treatment and disposal systems.

OS-2A Commercial Hazardous Materials - Inventory, Education, Monitoring: King County will: (1) inventory commercial, industrial, and institutional facilities served by on-site sewage treatment and disposal systems which potentially use, store, or dispose of hazardous materials; (2) educate operators on hazardous materials management; and (3) selectively monitor those facilities that appear to represent a significant risk to ground water quality.

Who:	Seattle-King County Health Department. Some education of operators is being done through the Local Hazardous Waste Management Program.
Priority:	High (Level Equivalent: 7)
Cost:	0.25 FTE.
Funding Source:	Aquifer Protection Area Fund.

OS-2B Hazardous Materials - Prohibit Non-Domestic Sewage: The Seattle-King County Health Department will prepare amendments to Title 13 of the Code of the King County Board of Health to expressly prohibit the use of on-site sewage systems for disposal of any materials or substances other than domestic sewage as defined in Chapter 246-272-010 WAC for King County Board of Health consideration.

Who:	Seattle-King County Health Department
Priority:	High (Level Equivalent: 3)
Cost:	0.04 FTE.
Funding Source:	Aquifer Protection Area Fund.

Issue 3 Household Hazardous Wastes: Household hazardous wastes can enter the wastewater stream when residues from cleaning and paint products or quantities of unwanted chemical substances are disposed of in a sink or toilet. When discharged to an on-site sewage system, household hazardous wastes may pass through the system and migrate to underlying ground water. While wastes from any single residence are not likely to have detectable impacts on underlying ground water, the cumulative effects of many residences may be significant. Many people are unaware that common household products often contain chemical compounds that can represent an environmental or even public health hazard if improperly handled.

OS-3A Household Hazardous Wastes - Education in the Local Hazardous Waste Program in King County: The Local Hazardous Waste Program in King County will coordinate with the Household Hazardous Waste Education Committee to include information about the risks to ground water associated with the disposal of household

hazardous wastes to on-site sewage systems as part of their household hazardous waste educational activities.

Who:	Seattle-King County Health Department
Priority:	High (Level Equivalent: 3)
Cost:	0.125 FTE.
Funding Source:	Aquifer Protection Area Fund.

OS-3B Household Hazardous Wastes - Public Education: King County will develop and carry out a public education program intended to increase the awareness of proper on-site sewage system operation and maintenance, including the risks associated with disposal of hazardous wastes in such systems. This will be included in the Education Program.

Issue 4 Operation and Maintenance: Homeowners and businesses need to be aware of the location and proper operation and maintenance of on-site sewage treatment and disposal systems.

OS-4A Operation and Maintenance - Plan Recorded With Property Deed: The Seattle-King County Health Department will prepare amendments to Title 13 of the Code of the King County Board of Health for King County Board of Health's consideration to require that the as-built on-site sewage treatment and disposal system plan be recorded with the property deed so that it be transferred with the title at the time of property purchase. In addition, information concerning the relationship between on-site system maintenance and operation practices and ground water protection will be added to the standard as-built plan form.

Who:	Task 1: Seattle-King County Health Department
Priority:	High (Level Equivalent: 2)
Cost:	0.04 FTE.
Funding Source:	Aquifer Protection Area Fund.

OS-4B Operation and Maintenance - Management Program: The Seattle King County Health Department will examine the feasibility of a on-site sewage system management program to determine its effectiveness in the protection of ground water in the Issaquah Creek Valley Ground Water Management Area.

Who:	Seattle-King County Health Department
Priority:	High (Level Equivalent: 6)
Cost:	0.5 FTE/yr.
Funding Source:	Aquifer Protection Area Fund.

2.3.4 Ground Water Quality Issues Related to the Use of Pesticide and Fertilizer

Pesticides and fertilizers are used for the control of plant and animal pests and promotion of plant growth. Pesticides are a large and varied group of substances that are specifically designed to kill biological organisms including weeds, insects, and rodents. Fertilizer is used to promote plant growth. Pesticides and fertilizers are used for agriculture, home, forestry and rights-of-way maintenance. Pesticides and fertilizer have the potential to contaminate ground water even when they are used according to the label instructions. The King County Comprehensive Plan policy, NE-502 states that King County should actively encourage the use of environmentally safe methods of vegetation control and that herbicide use should be minimized.

Issue 1 Pesticide and Fertilizer - Past Use: Past use of pesticide and fertilizer may pose a threat to ground water quality.

PF-1A Pesticide and Fertilizer - Past Use: Mapping of Vulnerable Aquifer Areas: Include land uses that have the potential for pesticide and fertilizer use in the determination of vulnerable aquifer areas. See the strategy described in the "Special Protection Areas section.

PF-1B Pesticide and Fertilizer - Past Use: Monitoring: The King County Department of Natural Resources and the City of Issaquah will monitor for pesticides and fertilizers in the physical susceptibility areas, where they are expected to occur based upon past land use.

Who:	King County Department of Natural Resources
Priority:	High (Level Equivalent: 1)
Cost:	No additional cost to include as part of the Data Collection and Management Program. These costs should be included in that program.
Funding Source:	There is no additional cost associated with this action that has not been included in the "Special Protection Areas" recommended management strategies.

Issue 2 Pesticide and Fertilizer Use: Use of pesticide and fertilizer may pose a threat to ground water quality.

PF-2A Pesticide and Fertilizer Use: Farm Plans: King County and the City of Issaquah will encourage and support the development of Farm Plans using Best Management Practices for any agricultural user of pesticide and fertilizer in physically susceptible areas.

Who:	King Conservation District
Priority:	High (Level Equivalent: 4)
Cost:	0.87 FTE.

Funding Source: Aquifer Protection Area Fund or special assessment.

PF-2B Pesticide and Fertilizer Use: Cooperative Extension Pesticide Reduction Program: King County and the City of Issaquah will encourage participation in the Cooperative Extension Pesticide Reduction Program to protect ground water within the Issaquah Creek Valley Ground Water Management Area.

King County and the City of Issaquah (the Management Committee) would evaluate its effectiveness and possible applicability for implementation in other areas in the county to determine whether this program would be useful for ground water protection. This evaluation would be done with Cooperative Extension at the end of the Program. The Management Committee must also determine funding needs and sources. A potential funding source could be development fees as a mitigation for non-point source pollution.

Who:	Cooperative Extension
Priority:	Medium (Level Equivalent: 11)
Cost:	No additional cost, the evaluation is included in the program.

Who:	King County Department of Natural Resources, and the City of Issaquah under direction by the Management Committee
Priority:	Medium (Level Equivalent: 11)
Cost:	To be determined
Funding Source:	Aquifer Protection Area Fund.

PF-2C Pesticide and Fertilizer Use: Roads and Utility Rights-Of-Way Maintenance: King County and the City of Issaquah will use non-chemical vegetation maintenance practices chemicals that degrade into non-harmful elements and that are not persistent in the environment for roads and utility rights-of-way in the Issaquah Creek Valley Ground Water Management Area. King County and the City of Issaquah will determine whether maintenance practices by others for roads and utility rights-of-way in the Issaquah Creek Valley Ground Water Management Area needs to be restricted to non-chemical methods or chemical usage as described above.

This action is supported by King County Comprehensive Plan policy, NE-502 which states that King County should actively encourage the use of environmentally safe methods of vegetation control and that herbicide use should be minimized. A good example of this type of program is the King County Department of Transportation, Roads Maintenance Division, which developed and implemented an integrated pest management program.

Task 1: Adopt policy that only non-chemical vegetation maintenance or non-leaching chemicals be used for rights-of-way maintenance.
Task 2: Research practices by other organizations
Task 3: Determine whether prohibition in an ordinance is needed based upon research.

Who:	Task 1. King County and the City of Issaquah
Priority:	High (Level Equivalent: 1)
Cost:	0.15 FTE City of Issaquah to be determined. There may be increased costs associated with these methods.
Funding Source:	Aquifer Protection Area Fund.

Who:	Task 1, 2, and 3. King County and the City of Issaquah (Management Committee)
Priority:	High (Level Equivalent: 1)
Cost:	To be determined. King County Department of Development and Environmental Services, Code Development Section: 0.5 FTE
Funding Source:	Aquifer Protection Area Fund.

Issue 3 Education and Proposed Programs: Many issues on the use of fertilizers and pesticides are best addressed by the State Strategy, the Puget Sound Water Quality Action Team Plan and various educational efforts. Implementation of many of the programs outlined in the Strategy and the Plan depend upon public support and funding from the Legislature and other sources. Existing educational efforts may not address the ground water protection policies and goals of the Issaquah Creek Valley Ground Water Management Plan.

PF-3A Education and Proposed Programs: Small Farmers and Homeowners: The Ground Water Advisory Committee supports the strategies in "Protecting Ground Water: A Strategy for Managing Agricultural Pesticides and Nutrients. April, 1992" and the 1991 Puget Sound Water Quality Action Team Plan (Household Hazardous Waste Program: HHW-2 Information and Education on Less-Toxic Alternatives for Household Products and Non-point Source Pollution Program: NP-17 Puget Sound Pest Management Information Program) to help insure that small farmers and homeowners receive more information about pesticide and fertilizer use. This support is provided by stating it here, no additional action is needed.

PF-3B Education and Proposed Programs: Education Section: Existing educational program content will be reviewed for agreement with the Issaquah Creek Valley Ground Water Management Plan policies and goals. The King County Department of Natural Resources will review the current educational programs of the Natural Resources Conservation Service, Cooperative Extension, and others to ensure that the Issaquah Creek Valley Ground Water Management Plan goals and policies are reflected. This will be done as part of the Issaquah Creek Valley Ground Water Management Plan Education Section.

2.3.5 Ground Water Quality Issues Related to Well Construction and Decommissioning

Wells provide a link between an aquifer and the earth's surface. Modern wells consist of a well casing that extends downward from the ground surface to the aquifer within a

cylindrical bore hole. The Minimum Standards for Construction and Maintenance of Wells (Chapter 173-160 WAC) requires that the space between the casing and the wall of the bore hole be sealed to prevent vertical movement of water along the outside of the casing. If this space is not adequately sealed, it may serve as a conduit by which contaminated surface or subsurface water may travel into an aquifer. Regulations also require that any well that: is unusable; has been permanently discontinued; is in such disrepair that its continued use is impractical, or is an environmental, safety, or public health hazard, must be decommissioned.

Issue 1 State Program: Existing regulations for well construction and decommissioning are not adequately enforced. Ecology does not receive enough funding to inspect more than a small percentage of wells during construction or decommissioning.

WC-1A State Program: Adequate Funding: Ecology, King County, the City of Issaquah and the Sammamish Plateau Water and Sewer District will support legislation that provides funding for the well construction and decommissioning program.
Task 1: Develop and submit legislation, with input from affected parties

Who:	Ecology
Priority:	High (Level Equivalent: 4)
Cost:	To be determined. Ecology estimates 0.64 FTE
Funding Source:	General agency funds.

Task 2: Support proposed legislation

Who:	King County, City of Issaquah, Sammamish Plateau Water and Sewer District
Priority:	High (Level Equivalent: 4)
Cost:	Probably minimal, to be determined
Funding Source:	General agency funds.

WC-1B State Program Delegation to King County: King County and Ecology will develop a local health department program for implementation of the delegated portion of the well construction and decommissioning program in King County.

Who:	Ecology and Seattle-King County Health Department
Priority:	Low (Level Equivalent: 18)
Cost:	Seattle-King County Health Department: 0.5 FTE. Ecology: 0.64 FTE
Funding Source:	Aquifer Protection Area Fund.

Issue 2 Well Identification: Wells need to be identified so that Ecology can implement programs to protect the ground water resource. Currently, there is no method to systematically identify wells; wells that were drilled before 1973 were not required to submit well logs to Ecology. Furthermore, no program exists to identify wells that will be decommissioned.

WC-2A Well Identification at Sale of Property: King County Department of Natural Resources will develop an ordinance for Metropolitan King County Council and the City of Issaquah's consideration that requires property sellers to disclose to buyers the existence of used or unused wells on a property.

Who: King County Department of Natural Resources
Priority: Low (Level Equivalent: 16)
Cost: 0.08 FTE
Funding Source: Aquifer Protection Area Fund.

WC-2B Well Identification During Environmental Review, Rezone and Land Use Permit Applications: King County Department of Natural Resources will develop an ordinance for the Metropolitan King County Council and the City of Issaquah's consideration that requires applicants to establish the location and status of wells present on the property in question during SEPA review, rezone and land use permit applications. King County and the City of Issaquah will provide this information to Ecology.

Who: King County Department of Natural Resources
Priority: Low (Level Equivalent: 16)
Cost: King County Department of Natural Resources: 0.08 FTE.
Funding Source: Aquifer Protection Area Fund.

Issue 3 Decommissioning Cost: Improperly decommissioned wells may become a channel for contamination to the aquifer. The decommissioning cost may prevent property owners from disclosing improperly decommissioned wells.

WC-3A Decommissioning Cost: Funding Source: King County will explore the possibility of having a funding source for decommissioning of wells for those property owners who disclose that they have a well which is no longer being used, and which has not been decommissioned according to Ecology's regulations.

Task 1: Report to the Management Committee on the feasibility of providing money for well decommissioning.

Who: King County Department of Natural Resources
Priority: Low (Level Equivalent: 17)
Cost: 0.125 FTE
Funding Source: Aquifer Protection Area Fund.

Task 2: Revise the Issaquah Creek Valley Ground Water Management Plan, if necessary.

Who: Management Committee
Priority: Low (Level Equivalent: 17)
Cost: This will be part of Management Committee tasks

Funding Source: Aquifer Protection Area Fund.

WC-3B Decommissioning Cost: Alternative Procedures: Ecology, during WAC revision, will consider alternatives to present requirements for cost-effective well decommissioning procedures that would also protect public health.

Who: Ecology
Priority: Low (Level Equivalent: 17)
Cost: 0.14 FTE
Funding Source: General agency funds.

Issue 4 Education: There is a lack of public knowledge about the public health significance of the requirements for well construction, operation, maintenance and decommissioning.

WC-4 Education: Coordinate With Ecology: The Ground Water Management Plan Education Program will coordinate with and support Ecology's well identification, well construction, maintenance, contamination sources and well decommissioning projects.

2.3.6 Ground Water Concerns Associated with Sewer Pipes

The more recently installed sewer pipes in King County are fabricated from polyvinyl chloride (PVC), a durable material that is virtually leak-free. However, prior to the use of PVC, sewer pipes were made from materials such as concrete, brick, clay and ductile iron. Joints were more susceptible to leaking with the use of these materials. Many of these older pipes are still in use.

Infiltration is ground water entering sewer pipes through leaking joints or defects. Inflow refers to direct flows of storm water into sewer pipes through hookups such as roof and footing drains. To date, data on the extent and magnitude of this potential problem is unavailable. There have been no studies conducted on exfiltration of wastes from sewer lines in King County and the possible impacts on ground water quality.

Issue 1 Infiltration and Exfiltration: Infiltration of ground water into gravity sewer pipes may be causing significant loss of ground water from the Issaquah Creek Valley Ground Water Management Area. Exfiltration of sewage from leaking sewer pipes may be causing ground water contamination.

SP-1A Infiltration and Exfiltration - Determine Problem: King County will: review and analyze existing studies and ongoing programs developed by King County Department of Natural Resources (Water Pollution Control) and local sewer districts to determine whether infiltration and exfiltration are problems in the Issaquah Creek Valley Ground Water Management Area and, analyze conclusions and determine appropriate follow-up action, if any.

Who: King County Department of Natural Resources
Priority: Low (Level Equivalent: 20)
Cost: 0.5 FTE.
Funding Source: Aquifer Protection Area Fund.

SP-1B Sewer Maintenance Programs: Encourage the King County Department of Natural Resources, Division of Water Pollution Control, the City of Issaquah and the Sammamish Plateau Water and Sewer District to continue or adopt regularly scheduled leak detection and repair programs, and public education programs related to side sewer maintenance.

Who: King County Department of Natural Resources
Priority: Low (Level Equivalent: 18)
Cost: Minimal.
Funding Source: General agency funds.

SP-1C Leakproof Piping: Encourage King County to amend the Comprehensive Land Use Plans and King County Code 13.24 to require that: new sewer piping to be installed in physically susceptible and recharge areas be leakproof, and that existing leaking sewer pipes, including side sewers, be replaced with leakproof piping in physically susceptible and recharge areas according to a schedule contained in the Sewer Utility Comprehensive Plans. This request is communicated during the Ground Water Management Plan review process. No further action is necessary.

Issue 2 Ground Water Depletion: Sewer pipes installed on sloping ground could provide a conduit for ground water, depleting valuable ground water reserves from a specific area.

SP-2 Ground Water Depletion - Backfill Materials and Seals: Encourage Ecology to consider amendments to sewer construction specifications which stop the transmission of ground water along pipe alignments. These provisions shall include Best Management Practices for backfill materials and/or the use of impermeable seals at appropriate intervals.

Who: King County Department of Natural Resources
Priority: Low (Level Equivalent: 18)
Cost: Minimal.
Funding Source: Aquifer Protection Area Fund.

2.3.7 Ground Water Quality Issues Related to Solid Waste Landfills

The ground water impact from landfills is from leachate production. Leachate is water or other liquid that has been contaminated by dissolved or suspended materials due to contact with solid waste or gases from the solid waste. Ground water that has been

contaminated by leachate may affect public health. Ground water that is not currently being used for drinking water also needs to be protected from leachate contamination, as it may become a drinking water source in the future.

Issue 1 Standards: King County Board of Health standards can be improved to provide better ground water protection. Ecology has revised the state solid waste regulation to include ground water provisions (adopted as Chapter 173-351 WAC). Seattle-King County Health Department has not yet adopted this WAC by reference.

SW-1 King County Board of Health Standards: The Seattle-King County Health Department will prepare amendments to Title 10 to adopt Chapter 173-351 WAC by reference for consideration by the King County Board of Health.

Who:	The Seattle-King County Health Department would propose that the King County Board of Health amend Title 10. This includes writing the revision, advertising the hearing, briefing the King County Board of Health and having a majority vote in favor.
Priority:	High (Level Equivalent: 4)
Cost:	Seattle-King County Health Department: 0.04 FTE.
Funding Source:	General agency funds.

Issue 2 Education: The public may not be aware of the relationship between landfilling solid waste and the threat to ground water quality

SW-2 Education Program: Include information about the relationship between solid waste disposal and ground water in the educational program.

2.3.8 Ground Water Concerns Associated with Burial of Human Remains

Cemeteries are found throughout King County, and it is possible that, under certain hydrogeologic conditions, burial practices have affected or are affecting local ground water quality. The threat to ground water from decomposing corpses and caskets includes chemicals, bacteria, viruses and metals. Currently, there are 70 cemeteries in King County ranging in size from 20 burial sites to 140,000 burial sites. Nothing is known about the existing or potential effect of decomposing corpses and caskets on ground water within King County.

Issue 1 Lack of Information: Information is insufficient to determine ground water impairments from embalming fluids, decaying human remains, and other materials associated with the burial of human remains in King County.

C-1 Information - Studies: The lead agency will evaluate existing information on cemeteries (including the results of the Woodlawn Cemetery, New York, investigation when made available) and conduct a study within the county to determine whether cemeteries are contaminating ground water. Findings of this study can be critically reviewed and compared with findings of other studies nationwide. Information gathered

can be used to establish siting criteria for new and existing cemeteries or to take other appropriate follow-up actions, if required.

Who: King County Department of Natural Resources
Priority: Low (Level Equivalent: 19)
Cost: 0.04 FTE
Funding Source: Centennial Clean Water Fund

2.3.9 Ground Water Quality Issues Related to Sand and Gravel Mining

Productive sand and gravel mines are often located over vulnerable aquifers. Mining activities in these areas can increase ground water vulnerability to contamination from both the extraction process and site reclamation.

Issue 1 Regulatory Modifications: Sand and gravel mining can cause changes in the site or include activities that increase the potential for contamination of important aquifers. Major changes have occurred at the state level regarding general permitting of sand and gravel mining operations.

SG-1. Regulatory Modifications: National Pollutant Discharge Elimination System Permit Program and Ecology's "General Permit" Requirements. King County Department of Natural Resources will develop a comprehensive list of best management practices in grading permits issued for gravel pits for the Metropolitan King County Council and the City of Issaquah's consideration. King County and the City of Issaquah should comply with the National Pollutant Discharge Elimination System and Ecology's "General Permit" requirements.

For the general permit drafted by Ecology, sand and gravel facilities are required to manage, treat and discharge their wastewater in a manner consistent with the Ground Water Quality Standards and National Pollutant Discharge Elimination System. This general permit includes the implementation of best management practices and monitoring of discharges to ground water with annual reporting of the monitoring data to Ecology. The General Permit provides positive controls to protect both surface water and ground water from contamination. The King County Road Services Division, Department of Transportation has prepared an approved National Pollutant Discharge Elimination System General Permit for each of their active and inactive sand and gravel mining operations in King County.

Task 1: Develop a (or use Ecology's) list of best management practices.
Task 2: Include the list in the requirements for grading permits.
Task 3: Meet General Permit and National Pollutant Discharge Elimination System requirements for King County or city owned sand and gravel sites.

Who: King County, City of Issaquah
Priority: Not ranked

Cost: King County Department of Natural Resources: 0.125 FTE.
Funding Source: Aquifer Protection Area Fund.

Issue 2 Aquifer Impacts and Regulation: Sand, gravel, and rock quarry mining can cause changes in the site or include activities which increase the potential for contamination of important aquifers. Major changes have occurred at the state level regarding general permitting of sand, gravel, and rock quarry mining operations. Ecology is requiring performance standards as part of the General Permit for all mines in King County. All discharges from sand, gravel, and rock quarry mines must meet the Ground Water Standards (Chapter 173-200 WAC) and the Surface Water Standards (Chapter 173-201A WAC).

SG-2A Ground Water Protection: Support Changes: The Ground Water Advisory Committee actively supports changes in regulations and practices which would provide better protection of ground water.

SG-2B Aquifer Impacts and Regulation - SEPA Guidance: A SEPA guidance document will include the following best management practices for sand, gravel and rock quarries:

1. For sites with a planned excavation depth lower than the ground water table, a detailed hydrologic report should be filed. This may be a part of a complete Environmental Impact Statement or be an appendix to a SEPA checklist.
2. When mining activities are to be located in designated well head protection areas, special protection areas, physically susceptible areas, or principal recharge zones, an Environmental Impact Statement should be required.
3. Where possible, mining sites should utilize internal drainage, in order to support continued ground water recharge and minimize off-site discharges.
4. When ground water is exposed during the mining operation and resulting impoundment is larger than three acres, ground water should be monitored for both water level (monthly) and water quality (quarterly to semi-annually) over the life of the operation. Water level and water quality monitoring should also be considered when depth to seasonal high water is reduced to five feet or less.
5. Associated activities such as concrete, asphalt or other batch processing plants should not contaminate ground water.
6. Truck and equipment wash runoff should be routed to an approved retention and treatment facility, equipped with an oil-water separator prior to its release to retention ponds.
7. Fuel (oils) storage and handing facilities should be located some distance from the main sediment and wash water retention facility. All such facilities should be equipped with approved containment, monitoring, and collection systems.
8. All sites should maintain a fuels/hazardous waste management plan. This would be maintained by the operator and be available on the site at all times.
9. At closure of the site, after accidental spills, or at the request of the King County Department of Development and Environmental Services/Ecology, all

contaminated material should be removed and disposed of with approved methods and at approved disposal sites. This material should not be used as fill at the site.

10. In general, impoundments of greater than three acres should not be filled. These sites should be stabilized as lakes and ponds and the surrounding area revegetated to insure stability of the site. Future land-use decisions should reflect increased ground water vulnerability at the site. Individual sites may be filled if it can be demonstrated that sufficient inert material can be obtained to serve as fill. Impoundments of less than three acres should not be filled if there is doubt as to quality or supply of inert fill.
11. Excavation pits should not be used as landfill disposal sites for unclassified or no-inert wastes. In general, municipal landfills are not an appropriate use of gravel sites located over semi-confined and unconfined ground waters.
12. Pits with standing water that are slated to be filled may use only approved inert earth materials (native fill/overburden) to fill the area up to the high water table. The remaining fill should meet the conditions described in 10 and 11.
13. Future land use should reflect the increased vulnerability of ground water at the site and the change in the water balance of the area.

Task 1: Prepare letters of support to Ecology, King County Department of Natural Resources, and King County.

Who:	Ground Water Advisory Committee Chair.
Priority:	High (Level Equivalent: 1)
Cost:	Minimal.
Funding Source:	Aquifer Protection Area Fund.

Task 2: Keep informed regarding legislative actions; alert Ground Water Advisory Committee chairs and members when support is needed.

Who:	King County Department of Natural Resources
Priority:	High (Level Equivalent: 1)
Cost:	Minimal.
Funding Source:	Aquifer Protection Area Fund.

Task 3: Prepare letter of support and/or phone contact when legislation is considered.

Who:	Ground Water Advisory Committee chairs and members.
Priority:	High (Level Equivalent: 1)
Cost:	Minimal.
Funding Source:	Aquifer Protection Area Fund.

Task 4: Develop guidance to assist environmental reviewers.

Who:	King County Department of Natural Resources, for the approval of the Management Committee.

Priority:	High (Level Equivalent: 1)
Cost:	0.50 FTE. The cost of review, amendment, and approval of the guidance will be included in the cost of participation in the Management Committee.
Funding Source:	Aquifer Protection Area Fund.

Issue 3 Land Use of Inactive or Reclaimed Mines: Subsequent land use of inactive and/or reclaimed sand and gravel mining sites should reflect the potential increased susceptibility of aquifers to contamination. There is currently no formal requirement that this be given special consideration.

SG-3A Land Use of Inactive or Reclaimed Mines: Comprehensive Plan Policy: King County Office of Strategic Planning and Department of Natural Resources will propose an amendment to the King County Comprehensive Plan for the Metropolitan King County Council's consideration to include a policy that provides that land use of inactive and/or reclaimed sand and gravel mines be carefully evaluated during environmental review in light of the potential increased susceptibility of aquifer contamination due to mining activities. The City of Issaquah would consider a similar amendment.

Who:	King County Office of Strategic Planning, in conjunction with the King County Department of Natural Resources, will prepare Comprehensive Plan amendments. The Metropolitan King County Council should consider Comprehensive Plan amendments depending upon their schedule and approval of the work plan which provides for all plan amendments.
Priority:	High (Level Equivalent: 1)
Costs:	King County: 0.15. City of Issaquah costs to be determined.
Funding Source:	Aquifer Protection Area Fund.

SG-3B Zoning Code - Reclamation Plans: King County will provide comments to the State Department of Natural Resources on mine reclamation plans proposed within the Issaquah Creek Valley Ground Water Management Area. Additionally, consistent with KCCP Policy NE-333, King County will develop with affected jurisdictions, Best Management Practices for mining operations.

Task 1: Revise zoning code to protect ground water in reclaimed sand and gravel mining operations.

Who:	King County and the City of Issaquah
Priority:	High (Level Equivalent: 1)
Costs:	King County Department of Natural Resources: 0.15 FTE, Department of Development and Environmental Services, Code Development: 0.05 FTE.
Funding Source:	General agency funds.

Task 2: Review Chapter 78.44 RCW and the King County's role in protecting ground water during and after mine reclamation. Assess Chapter 78.44 RCW, as amended in 1993 and 1994 in relation to King County Code Chapter 21.A.22

Who:	King County Department of Natural Resources
Priority:	High (Level Equivalent: 1)
Costs:	Included in Task 1.
Funding Source:	Aquifer Protection Area Fund.

2.3.10 Ground Water Concerns Associated with Biosolids and Sewage Effluent

Biosolids are the treated and primarily organic sewage solids generated from wastewater treatment plants. Biosolids may be utilized for various beneficial uses including compost and fertilizer production, agricultural and silvicultural land application, land reclamation, and the manufacture of various construction materials. The Ground Water Advisory Committee determined that no additional action was needed for this issue.

Sewage effluent is the liquid waste left after sewage has settled. This liquid may be untreated, or it may be further settled, filtered, and disinfected, depending on final use. Reuse of effluent is regulated by the State Water Pollution Control Act (Chapter 90.48 RCW) administered by Ecology and by the Wastewater Reclamation and Reuse Interim Standards.

Issue 1 Guideline Revision: Recently, an increased need for conservation of water resources has focused interest in reuse of treated effluent. The effluent guidelines are being revised and will need to comply with the State ground water standards. However, it is not known if special protection for the most physically susceptible and recharge areas will be considered.

BSE-1 Ecology Guideline Revision: Ecology will include ground water protection in the revised guidelines for the reuse of effluent. The guidelines need to include constraints for the reuse of effluent in the most physically susceptible and recharge areas.

Who:	Washington State Department of Health and Ecology
Priority:	Low (Level Equivalent: 16)
Cost:	Ecology: 0.24 FTE
Funding Source:	General agency funds.

2.4 Ground Water Quantity Issues

The Ground Water Advisory Committee adopted this goal to guide the development of the recommended management strategies: To manage the quantity of ground water resources of King County to optimize the current and long-term benefits.
Ground water quantity is important because ground water is used for drinking water, irrigation, industrial processes, and provides flow to streams, which support fish and

other wildlife. Aquifers, and related surface water levels, are maintained by preserving recharge. The two main threats to preserving recharge and ground water levels are by reducing recharge by increasing permeable surfaces and by overuse. Recharge occurs only through relatively undisturbed, permeable soils. Population growth, with it's related construction of buildings and roads, causes an increase in impermeable surfaces and the demand for ground water.

The state of Washington has attempted to balance the needs of its citizens with maintaining the water resource. Ecology administers laws dealing with water appropriations and allocations. Allocations to new users must not conflict with existing use; however, the information needed to know when such a conflict may occur is lacking. Some areas of the state have experienced the effects of unwise use of aquifers, such as water level decline and seawater intrusion. Parties involved in water use are developing and using innovative techniques, such as conservation and artificial recharge, to decrease water use and increase water availability. Recent interest in maintaining surface water resources has spotlighted the interaction of ground water and surface water. Future ground water resource management must consider this interaction.

The *Ground Water Areas Management and Programs* (Chapter 173-100 WAC) contains guidelines on program content which were to be adapted to the particular needs of a ground water management plan. Included in the program content is a section on alternatives, which outlines various land and water use management strategies that address each of the ground water problems discussed in a problem definition section. It states that the alternative management strategies would address water conservation, conflicts with existing water rights and minimum instream flow requirements, programs to resolve such conflicts, and long-term policies and construction practices necessary to protect existing water rights and subsequent facilities installed in accordance with the Ground Water Management Plan program and/or other water right procedures. This Plan does not address these topics, except for conservation. Several new state programs, initiated since the WAC was written, provide programs to resolve conflicts with existing water rights and minimum instream flow requirements, and long-term policies and construction practices necessary to protect existing water rights and subsequent facilities (generally, under the Water Resources Forum from the Chelan Agreement). The Ground Water Advisory Committee found that the best way to address ground water quantity issues is to develop and implement a long-term monitoring and data collection program to provide the decision makers with the necessary ground water information.

Issue 1 - Policies and Ordinances. The proposed King County clearing ordinance may provide broad protection for physically susceptible and recharge areas. However, King County may not adopt the proposed clearing ordinance. Also, environmental review needs to include information on development impacts to ground water quantity and quality.

WQ-1 Policies and Ordinances - Environmental Checklist: Petition Ecology to amend the environmental checklist to include impacts on the quantity of aquifer recharge.

Until the change by Ecology can be made, the City of Issaquah, King County and other reviewing agencies will consider impacts on the quantity of aquifer recharge during environmental checklist review.

Task 1: Revise environmental checklist.

Who:	Ecology, through rule revision
Priority:	High (Level Equivalent: 2)
Cost:	0.06 FTE
Funding Source:	General agency funds.

Task 2: Include impacts on the quantity of aquifer recharge in the environmental review guidance document.

Who:	King County Department of Natural Resources
Priority:	High (Level Equivalent: 2)
Cost:	0.25 FTE
Funding Source:	General Agency Funds.

Issue 2 Data Needs: A complete characterization of the aquifer resource is needed. This information is needed by Ecology for water rights application analysis, surface water/ground water interaction determination, possible ground water reservation, and other resource management concerns. To date, this has not been completed.

WQ-2 Data Needs: Information for Water Resource Decisions: Design and implement a ground water data collection management program that would enable Ecology and others (such as purveyors, land use planners and public officials) who make land and water use decisions to make water resource decisions based on more complete information.

Who:	King County and the City of Issaquah through the Management Committee
Priority:	High (Level Equivalent: 1)
Cost:	In DCM - 1.
Funding Source:	Aquifer Protection Area Fund.

Issue 3 Water Rights: Water rights records do not necessarily accurately reflect actual pumping rates and current use of the ground water resource.
WQ-3 Water Rights Records: Utilities will update their water right records and report to Ecology, according to the recommended program in the Five Year Water Resource Data Management Plan.

Who:	Water utilities
Priority:	High (Level Equivalent: 4)
Cost:	To be determined

Funding Source: General agency funds.

Issue 4 Conservation: Conservation has been shown to have a positive impact on ground water resources. There are some conservation methods that could be implemented to enhance current programs, including landscaping methods. King County Board of Health regulations for small water systems do not include conservation elements.

WQ-4A Conservation - Landscaping: King County Department of Natural Resources will develop a proposed landscaping ordinance to encourage conservation in new developments for the Metropolitan King County Council's consideration. Landscaping plans should incorporate native growth areas, use of plant species that are drought-tolerant, water efficient irrigation technologies, soil amendments, and limitations on the amount of turf. The City of Issaquah will consider adopting similar ordinances.

Who:	King County, City of Issaquah
Priority:	High (Level Equivalent: 7)
Cost:	Department of Natural Resources: 0.08 FTE. King County Department of Development and Environmental Services, Code Development: 0.22 FTE.
Funding Source:	Aquifer Protection Area Fund.

WQ-4B Conservation: Group B Small Public Water Systems: The Seattle-King County Health Department will propose a revision to regulations for existing, new, or expanded Group B Small Public Water Systems to cover water conservation goals and measures for consideration by the King County Board of Health.

WQ-4C Conservation: Individual Wells. The Seattle-King County Health Department will propose regulations for new and existing individual wells incorporating conservation measures, including source meters, for consideration by the King County Board of Health.

Who:	Seattle-King County Health Department, King County Board of Health.
Priority:	High, Medium (Level Equivalent: 8,13)
Cost:	0.08 FTE.
Funding Source:	Aquifer Protection Area Fund.

Issue 5 Education: Xeriscaping, Schools, Cooperative Extension Service: Education has also been shown to have a positive impact on ground water resources. These educational activities will be included in the Education Section.

Issue 6 Artificial Recharge: Artificial recharge is a new technique that is being tried in this area. However, not enough is known about the feasibility for long-term artificial recharge.

WQ-6 Artificial Recharge Investigate: Purveyors will investigate artificial recharge programs.

Who:	Public water systems
Priority:	High (Level Equivalent: 1)
Cost:	To be determined
Funding Source:	General agency funds.

Issue 7 Reservation: Ground water reservation may be used to limit the amount of ground water withdrawn from a system.

WQ-7 Reservation: Encourage utilities, tribes, local governments, and small public water systems to petition Ecology for water supply reservation of the ground water resource consistent with King County Coordinated Water Supply plans, and the Growth Management projections in the King County Comprehensive Plan for that area.

Who:	Ground Water Advisory Committee
Priority:	High (Level Equivalent: 1)
Cost:	No additional cost, stated in Ground Water Management Plan.

2.5 Unfinished Agenda

The Guidelines for Ground Water Management Area and Programs calls for concurrence on the recommended management strategies, and resolution of any non-concurrence issues by the Ground Water Advisory Committee. During review of the Draft Issaquah Creek Valley Ground Water Management Plan, some management strategies were identified that the reviewing agency could not commit resources to implementing at this time. The Department of Ecology's guidance for concurrence allows that unresolved issues may be placed into an Unfinished Agenda section. These issues may not be critical to the Plan, generally, that means they cannot relate to overall plan implementation and funding. However, Ecology retains the final determination on whether they are critical to the Plan. The following issue was identified by the Ground Water Advisory Committee during non-concurrence issue resolution as appropriate to be placed in the unfinished agenda:

Aquifer Protection Area: Metropolitan King County Council does not concur with the need to establish an Aquifer Protection Area until other funding options are considered. However, since this funding mechanism is favored by the City of Issaquah and the Sammamish Plateau WSD, this question remains an unresolved issue that will be addressed by the Issaquah Creek Valley Ground Water Management Committee at a later date. The original recommendation of the Ground Water Advisory Committee is as follows:

Recommendation: The Ground Water Advisory Committee recommends that the Metropolitan King County Council authorize a ballot measure that, if approved by the voters, would create the Issaquah Creek Valley Aquifer Protection Area to provide

funding for implementation of the Issaquah Creek Valley Ground Water Management Plan. These funds must be used only for Issaquah Creek Valley Ground Water Management Area activities.

The purpose of an Aquifer Protection Area is to establish a funding base for ground water protection, preservation, and rehabilitation programs. Aquifer Protection Areas are established through an election ballot issue requiring approval from a simple majority of voters within the proposed Aquifer Protection Area. If voters approve the Aquifer Protection Area, the county can collect monthly ground water and septic system user fees. Fees may only be collected from users of water withdrawn from an aquifer as opposed to a surface water source. Establishing an Aquifer Protection Area that includes territory located within a city must include approval of the city's governing body. The Metropolitan King County Council could propose an Aquifer Protection Area jointly with the City of Issaquah's Council approval for the entire Issaquah Creek Valley Ground Water Management area. This would require an interlocal agreement between the City of Issaquah and King County on funding and implementation of the Ground Water Management Plan under this option. Alternatively, an aquifer protection area can be proposed for the unincorporated areas by the Metropolitan King County Council action only.

Creation and adoption of the Issaquah Creek Valley Aquifer Protection Area could ensure adequate long-term funding for implementing the Issaquah Creek Valley Ground Water Management Plan. Community support would be demonstrated because the Aquifer Protection Area has to be approved by a majority of the people in the area. Also, an Aquifer Protection Area is in line with Ecology's Ground Water Management Plan implementation ideas and what other counties have used. There are laws and administrative structures either explicitly in place elsewhere, or there are models for forming or using an Aquifer Protection Area.

The Ground Water Advisory Committee recognizes that the ballot measure must describe the specific use, and any changes in specific uses or the fee would require voter approval. Fee collection is limited, in that the Aquifer Protection Area fees may only be collected from users of water withdrawn from an aquifer as opposed to a surface water source; the fee is not related to the amount of water used; and fees may be assessed on on-site sewage disposal only, not other sources of ground water contamination. When ballot measures are drafted for the Aquifer Protection Area, consideration must be given for how funds will be collected and distributed by those implementing agencies whose boundaries encompass more than one ground water management area.

If an Aquifer Protection Area ballot fails, then it is recommended that the Ground Water Advisory Committee and affected agencies devise an alternate source of funding to implement the Plan. One alternative is participation by the City, County and special purpose districts on a volunteer basis through their water rates or other revenue sources to fund implementation of the Issaquah Creek Valley Ground Water Management Plan.

Stormwater: ST-6 Roadway Runoff: King County and the City of Issaquah will:

- Direct their public works departments to give high priority to physically susceptible areas and Well Head Protection Areas when identifying and correcting water quality problems associated with existing roadways, and

- Develop a program to retro-fit existing structures, as required by the National Pollution Discharge Elimination System, which will require stormwater quality and quantity controls comparable to new regulations when conducting major renovation or widening of roads.

King County Department of Transportation, Road Services Division does not concur with the first bullet under ST-6. Road Services produces a six year program for road maintenance, and has already identified and prioritized the transportation needs in the County for the current budget. However, staff, during concurrence discussion, stated that consideration of location of a road, whether in a sensitive area, could be included as one of many factors in the prioritization done in the future.

Who:	King County and the City of Issaquah
Priority:	High (Level Equivalent: 3)
Cost:	Regulation development and increased costs for implementing the regulation to be determined.
Funding Source:	No additional funds are needed to request prioritization of the most physically susceptible and recharge areas for water quality and quantity improvements. Storm water utility fees or development impact fees allowed under the Growth Management Act may be used to fund improvements made during road renovation or widening.

Chapter Three

Recommended Implementation Process

Issaquah Creek Valley
Ground Water Management Plan

March 1999

Recommended Implementation Process for the Ground Water Management Program

3.1 Introduction

The ground water management planning process has been funded by Centennial Clean Water Fund grants administered by the Washington State Department of Ecology (Ecology) and contributions from King County, cities, and water utilities. However, implementation of the Ground Water Management Plan depends upon long term funding and appropriate assignment of responsibility. Executive and legislative branches of government and other public and private interests have important roles in the implementation of the Ground Water Management Plan to protect ground water quality and quantity. The recommended implementation process described in this chapter assigns roles and tasks and proposes a source of funding. Topics addressed include:

- Legislative authority
- Funding
- Washington Department of Ecology
- Ground Water Management Committee
- Ground Water Advisory Committee
- Lead agency
- Implementation Plan
- Process for evaluation and revision of the Ground Water Management Plan

Summary tables at the end of this chapter list actions to be taken during plan implementation. These tables also list priorities, who is responsible for implementation, an estimate of personnel time (in FTE, full-time equivalent), and a source of funds.

3.2 Legislative Authority

The land areas affected by this plan lie within the jurisdictions of the City of Issaquah, King County, and Sammamish Plateau Water and Sewer District. These entities are responsible for land use and/or maintaining municipal water supplies to provide sufficient and adequate potable water in their respective jurisdictions.

Metropolitan King County Council

The Metropolitan King County Council is legislative authority of the county. The Metropolitan King County Council exercises its legislative power by adoption and enactment of ordinances; by levying taxes, appropriating revenue and adopting budgets; and other powers as described in the King County Charter (King County Charter, Sections 220-270). The Council ensures that the policies in the King County Comprehensive Plan are carried out through ordinances implementing the Plan.

Seattle-King County Board of Health

The Seattle-King County Board of Health was created by Metropolitan King County Council Ordinance 12098 in response to a state law, RCW 70.05.035, which required that the County have a single board of health by January 1, 1996. Previously the Metropolitan King County Council served as the Board of Health for King County and the Seattle City Council served as the Board of Health for Seattle.

The Board of Health is constituted as a federated body: 11 of its 13 voting members are elected officials - 6 from the Metropolitan King County Council, 3 from the Seattle City Council and 2 from the Suburban Cities of King County. The two remaining voting members are health professionals, selected by the other members of the Board, who serve as citizen public health experts, assisting the Board to deal with complex, often technical, public health issues. A third health professional serves as a nonvoting member.

The Board has powers concerning health and sanitary measures for the protection of the public health within the county, including:

- Enacting such county rules and regulations as are necessary in order to preserve, promote, and improve public health, and provide for the enforcement thereof; and
- Establishing fee schedules for issuing or renewing permits or for such other services as are authorized, provided that such fees or services shall not exceed that actual cost of providing any such services. Fee schedules shall be established by board rules and regulations.

Affected City Councils, Special Purpose Districts and Others

City councils, elected by the citizens within the city boundaries, are the legislative body for the incorporated cities. They have powers and authority similar to that of the county council; most importantly, they are the land use and policy bodies for the incorporated cities. Other administrative bodies include the board of commissioners for water districts, sewer districts, and water associations. These boards set policies and rates for the provision of water and sewer service within their service areas.

Recommendation: The Ground Water Advisory Committee recommends that legislative authority for adoption and implementation of the plan be shared between the Metropolitan King County Council, the King County Board of Health, the Issaquah City Council, and Sammamish Plateau Sewer and Water District. These legislative bodies are needed to implement the plans because they encompass actions that are typically under the purview of one or more, but not the others. King County Board of Health authority is particularly important because it allows for the adoption of ordinances that are effective in both the unincorporated areas and in the cities of King County. Roles of each legislative authority are recommended as outlined below:

Metropolitan King County Council

- Adopt the Ground Water Management Plan after it has been certified by Ecology;
- Appoint members of the Ground Water Management Committee;
- Adopt revisions to the Ground Water Management Plan;
- Review, amend as necessary, adopt, and allocate annually aquifer protection funds subject to the interlocal agreement with the City of Issaquah, and affected governments and agencies based upon the original and yearly amended implementation plan; and,
- Adopt ordinances necessary for the implementation of the Ground Water Management Plan (generally addressing such matters as land use, zoning, and regulations governing the activities of county agencies).

King County Board of Health

- Adopt ordinances necessary for the implementation of the Ground Water Management Plan (generally addressing activities regulated by the Seattle-King County Health Department; e.g., on-site sewage disposal, small public and private drinking water systems, solid waste disposal, etc.).

Issaquah City Council

- Adopt the Ground Water Management Plan after it has been certified by Ecology;
- Adopt ordinances as needed to implement the Ground Water Management Plan within city limits; and
- Adopt revisions to the Ground Water Management Plan.

Sammamish Plateau Sewer and Water District

- Adopt the Ground Water Management Plan after it has been certified by Ecology;
- Adopt measures as needed to implement the Ground Water Management Plan within their jurisdiction;
- Adopt revisions to the Ground Water Management Plan; and
- Adopt funding mechanism through water rates as applicable.

3.3 Funding

A major source of long-term funding must be developed to implement the Ground Water Management Plan. This source of funding would be augmented by grants and any specific use or service fees. Tables 3.8.1 and 3.8.2 indicate actions for which grants and specific use/service fees are appropriate.

A variety of methods could be available to fund ground water protection. One method is to establish an Aquifer Protection Area under Chapter 36.36 RCW. The King County

Board of Health could adopt a Rule and Regulation to establish added fees on permits for a variety of water users or potential contaminators. Water purveyors could establish funding through increasing their rates or other methods. An unexplored method for emergency or long-term funding could be through the "Sewerage, Water, and Drainage Systems (County Services Act Chapter 36.94 RCW)". Description of the funding methods:

Aquifer Protection Area. The purpose of an Aquifer Protection Area is to establish a funding base for ground water protection, preservation, and rehabilitation programs. Aquifer Protection Areas are established through a ballot issue requiring approval from a simple majority of voters within the proposed Aquifer Protection Area. If voters approve the Aquifer Protection Area, the county can collect ground water and septic system user fees. Aquifer Protection Area funding can support virtually all activities associated with the implementation of a Ground Water Management Program.

Special Purpose Districts, Cities with Water Departments, and Others could fund regional and individual components of the adopted ground water plan through their water rates. Annually, beginning in April, the Management Committee will meet to determine the level of funding required for the next year's implementation activities. The concurring agencies will evaluate their level of participation. Through a series of individual interlocals, the regional aspects of the plan and King County participation could be funded along with individual utility responsibilities.

Chapter 36.94 RCW. The County Council may act under the emergency provisions granted to it under Chapter 36.94 RCW to float a short-term bond providing operating funds for the implementation of the groundwater management program.

Recommendation: King County is currently exploring approximately 6-8 long term funding alternatives for the purpose of implementing a ground water management program. If a regional funding source cannot be identified, the Issaquah Creek Valley Ground Water Management Committee should assess the feasibility of establishing an Aquifer Protection Area to provide funding for implementation of the Plan.

3.4 Washington Department of Ecology Role

A certified Ground Water Management Plan is codified in the Washington Administrative Code and is a regulation that Ecology is responsible for administering. Ecology will rely on local government cooperation to implement the Plan, but it may assist the lead agency, if needed, to gain compliance with provisions of the adopted Plan.

3.5 Ground Water Management Committee

The Issaquah Creek Valley Ground Water Management Plan will be implemented by various agencies. These agencies and the public should be represented in oversight of the Issaquah Creek Valley Ground Water Management Plan.

Recommendation: The Ground Water Advisory Committee recommends the formation of the Issaquah Creek Valley Ground Water Management Committee (Management Committee) that will coordinate ground water protection activities in the Issaquah Creek Valley Ground Water Management Area. The Issaquah Management Committee should consist of a one representative from King County, the City of Issaquah, the Sammamish Plateau Water and Sewer District, the Muckleshoot Indian Tribe, and a Issaquah Ground Water Advisory Committee member in advisory capacity. Future members of the management committee would represent entities, such as other water utilities and associations, which voluntarily fund plan programs. Representatives should appoint an alternate to represent them when they are unavailable to attend meetings. The Management Committee will receive comments and input from the Issaquah Ground Water Advisory Committee through their representative on the Management Committee. The Management Committee shall be established by motion by the Metropolitan King County Council with members appointed by the Council, serving staggered terms of three years.

The Management Committee should meet regularly to provide oversight to the implementation, and to address the topics as assigned in the Issaquah Ground Water Management Plan. It is expected that they would solicit information and participation from experts and interested parties as necessary. The Issaquah Creek Valley Ground Water Management Committee will carry out the following tasks:

- Monitor the implementation of the Issaquah Creek Valley Ground Water Management Plan, including:
  1. Review annual reports on implementation prepared by the lead agency; and
  2. Determine whether implementation is adequate and whether changes are needed in priorities, monitoring, reporting etc. during the implementation period.

- Update the Issaquah Creek Valley Ground Water Management Plan:
  1. Act as a forum to consider new or ongoing ground water protection issues of significance to all Ground Water Management Areas;
  2. Determine whether revisions are needed to the Issaquah Creek Valley Ground Water Management Plan; and
  3. Review, amend as necessary, and recommend for adoption by the Metropolitan King County Council, King County Board of Health, and the Issaquah City Council an updated Ground Water Management Plan five years after certification of the original Ground Water Management Plan by Ecology.

- Perform tasks as assigned in the Issaquah Creek Valley Ground Water Management Plan (i.e., facilitating wellhead protection in King County; determining categorical exemptions to SEPA that should be eliminated in physically susceptible and recharge areas and development of guidance documents to assist environmental reviewers in King County and cities).

Public Involvement: Interested public groups and individuals should be kept informed of the Issaquah Management Committee's work and implementation progress by inclusion on a notification list. Those on the list should receive the Management Committee's meeting agenda and minutes and routine updates on the plan's progress. The Management Committee's meetings should be open to the public. Also, if the Issaquah Management Committee is aware of an agency or individual that has an interest in a topic under discussion, they should be invited to attend. Elected officials should also be included on the notification list. Elected officials may also have the opportunity to have presentations on the Issaquah Creek Valley Ground Water Management Plan progress.

Dispute Resolution: The Management Committee should develop a process for resolving disputes between those implementing the plan or for other interested agencies and individuals. The Committee should first attempt to resolve any disputes before they are appealed to local legislative bodies.

Bylaws: Decisions of the Management Committee will be by consensus whenever possible. The Management Committee should adopt bylaws that outline procedures for resolving lack of consensus and that Issaquah Creek Valley Ground Water Advisory Committee recommendations will be carefully and promptly considered, and followed by a written response. The Management Committee should adopt by-laws.

Individual members of the Management Committee will have the responsibility to coordinate internally with the entity represented. For example, a representative of a city needs to communicate and coordinate with their council and public works, planning, and building departments, and other affected departments about ground water management issues.

The Management Committee may make use of subcommittees to accomplish some of its tasks. For example, a subcommittee might address the topic of hazardous materials transport through aquifer protection areas. Federal and State agencies will be asked to serve in a technical capacity, as appropriate, on the subcommittees.

Water purveyors relying on a ground water source may be asked to contribute to technical subcommittees formed to advise the Management Committee. Purveyors may serve regardless of whether their system is located in the Issaquah Creek Valley Ground Water Management Area, because subcommittees will be deliberating upon issues that will affect all ground water purveyors, not just those in the Issaquah Creek Valley Ground

Water Management Area. An example of such an issue is minimum wellhead protection for public water systems in King County where minimum wellhead protection strategies may be developed by the Issaquah Management Committee that add to what is already contained in the Ground Water Management Plan.

3.6 Ground Water Advisory Committee

The Issaquah Creek Valley Ground Water Advisory Committee was established to develop the Issaquah plan. After it is certified by Ecology, the Ground Water Advisory Committee's duties are completed. However, successful implementation of the Issaquah Creek Valley Ground Water Management Plan depends upon support by the affected agencies and the community.

Recommendation: The Ground Water Advisory Committee recommends that they continue to meet at their discretion. The role of the Ground Water Advisory Committee is to monitor implementation of the Issaquah Ground Water Management Plan and to make recommendations to the Management Committee via its representative. The Ground Water Advisory Committee will also review and comment upon the first Issaquah Creek Valley Ground Water Management Plan update.

3.7 Lead Agency

Implementation of the Issaquah Creek Valley Ground Water Management Plan will require staff to perform day-to-day tasks. This staff needs to be familiar with the Issaquah plan, database management, local concerns, the budget process, and be technically capable. This staff will need to provide administrative functions to the satisfaction of the Issaquah Management Committee and the legislative authorities.

Recommendations: The Ground Water Advisory Committee recommends that the King County Department of Natural Resources serve as lead agency for implementation of the Issaquah Creek Valley Ground Water Management Plan in unincorporated King County and the City of Issaquah within its City limits. An interlocal agreement should be developed and executed for specific work within each of their boundaries. In fulfilling its role as lead agency, the King County Department of Natural Resources and the City of Issaquah will:

- Refine cost estimates of the Issaquah Creek Valley Ground Water Management Plan in consultation with implementing governments and agencies;
- Assist the Metropolitan King County Council in determining the aquifer protection fee; and,
- Prepare an annual proposed allocation of the aquifer protection funds, based upon the adopted Issaquah implementation plans, for review and adoption by the Management Committee, affected governments and agencies, and the Metropolitan King County Council.

3.8 Implementation Plan

Ground Water Advisory Committee recommended implementation priorities are listed in the Implementation Plan included in this section as Tables 3.8.1 and 3.8.2. Setting priorities enables the Ground Water Advisory Committee to ensure that ground water protection is maximized in the near term. The schedule contained in the Implementation Plan provides a framework within which all governments and agencies can begin discussion of their Ground Water Management Plan implementation activities. Implementation efforts by King County, the City of Issaquah, and the Sammamish Plateau WSD will be phased in over time. These efforts are dependent upon the availability of funding.

The first table is organized by Ground Water Advisory Committee - determined priority. The second table is organized by the agency or government that will be responsible for implementing the action.

3.9 Process for Evaluation and Revision of the Ground Water Management Plan

Recommendation: The Issaquah Creek Valley Ground Water Advisory Committee recommends that a process for periodic evaluation and revision of the Issaquah Creek Valley Ground Water Management Plan is established to ensure that its goals are achieved efficiently under changing conditions.

The Management Committee, the Issaquah Creek Valley Ground Water Advisory Committee, the lead agencies, and governments and agencies affected by the Issaquah Ground Water Management Plan will be involved in future evaluation and revisions. The first revision will be five years from the date of Issaquah Creek Valley Ground Water Management Plan certification by Ecology. Subsequent revisions will also be done on five-year intervals unless the Management Committee determines that more frequent updates are needed.

The concurrence process will be initiated by the King County Department of Natural Resources and the City of Issaquah following adoption of revisions by the Management Committee. Public hearings will be held as required by law. The draft update will be submitted to the Metropolitan King County Council for review when all affected governments and agencies have concurred and before it is submitted to Ecology.

The Issaquah Creek Valley Ground Water Management Plan updates at time intervals less than five years should be avoided due to the lengthy process of review, public hearings, concurrence, and adoption. Other mechanisms may be used to implement short-term changes either in substance or priority. For example, a grant could be sought to carry out a specific new task that the Management Committee feels is urgent but which is not included in the current Issaquah Creek Valley Ground Water Management Plan. Alternatively, plan priorities could be changed to step up activity related to an issue that the Management Committee determines is more urgent than others.

The King County Department of Natural Resources will assist the Management Committee in its evaluation of the Issaquah Creek Valley Ground Water Management Plan by preparing annual implementation reports. The City of Issaquah will provide information for assembly of the annual reports. The Management Committee will use the reports to determine whether and how Issaquah Ground Water Management Plan should be modified when it is updated. These reports will cover such topics as:

- Progress in implementing plan elements in comparison with established priorities and schedule;
- Problems encountered in implementation of specific program elements;
- Proposed revisions or priority adjustments to address problems encountered in implementation; and,
- Changes in federal, state, or local laws affecting the management plan.

The King County Department of Natural Resources will incorporate proposed revisions into the Issaquah Creek Valley Ground Water Management Plan.

Table 3.8.1

Implementation Priority

Issaquah Creek Valley
Ground Water Management Plan

March 1999

Table 3.8.1 Implementation Priority

Management Strategy	Agent	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
DCM - 1 Data Collection Analysis and Management	City of Issaquah (task 1)	TBD	0.00	0.00		General Funds	high
DCM - 1 Data Collection Analysis and Management	King County Dept. of Natural Resources (Task 2, 3, 4)	1.00	0.00	0.00	APF		high
DCM - 1 Data Collection Analysis and Management	King County Dept. of Natural Resources (Task 1) Non-FTE Costs	1.57	0.00	0.00	APF		high
DCM - 1 Data Collection Analysis and Management	Sammamish Plateau (task 1)	TBD	0.00	0.00		General funds	high
DCM - 1 Data Collection Analysis and Management	SKCHD (task 1)	0.50	0.00	0.00	APF		high
DCM - 2 Data Collection Analysis and Management	Ecology	0.06	0.00	0.00		General Agency Fund	high
ED - 1,2,3 Education Program	King County Dept. of Natural Resources	0.50	0.00	0.00	APF		high
Education	City of Issaquah	0.47	0.00	0.00		General Funds	high
Education	Sammamish Plateau	0.04	0.00	0.00		General Agency Fund	high
Management Committee Tasks: SA - 2, WC - 3A, HM - 7B, PF - 2B, OS - 1	Management Committee	1.41	0.00	0.00	APF		high
PF - 1A Pesticide and Fertilizer Past Use	King County Dept. of Natural Resources		0.00	0.00	APF		high
PF - 1B Pesticide and Fertilizer Past Use	King County Dept. of Natural Resources (DCMP)		0.00	0.00	APF		high
PF - 2C Pesticide and Fertilizer Use	City of Issaquah	TBD	0.00	0.00		General Agency funds	high
PF - 2C Pesticide and Fertilizer Use	DDES Code Development	0.50				General Funds	high
PF - 2C Pesticide and Fertilizer Use	King County Dept. of Natural Resources	0.15	0.00	0.00	APF		high
SA - 3 Sole Source Aquifer Petition	King County Dept. of Natural Resources	0.25	0.00	0.00	APF		high
SG - 1 Regulatory Modifications	City of Issaquah	TBD	0.00	0.00		General Funds	high
SG - 1 Regulatory Modifications	King County	TBD	0.00	0.00	APF		high
SG - 2A, 2B Aquifer Impacts	King County Dept. of Natural Resources	0.50	0.00	0.00	APF		high
SG - 3A Land Use of Inactive or Reclaimed Mines	City of Issaquah	TBD	0.00	0.00		General Funds	high

Table 3.8.1 Implementation Priority

Management Strategy	Agent	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
SG - 3A Land Use of Inactive or Reclaimed Mines	King County Dept. of Natural Resources	0.15	0.00	0.00	APF		high
SG - 3B Zoning code - Reclamation plans	City of Issaquah	TBD	0.00	0.00		General Funds	high
SG - 3B Zoning code - Reclamation plans	DDES Code Development	0.50	0.00	0.00		General Funds	high
SG - 3B Zoning code - Reclamation plans	King County Dept. of Natural Resources	0.15	0.00	0.00	APF		high
ST - 1 Runoff Versus Recharge	City of Issaquah	TBD	0.00	0.00		General Funds	high
ST - 1 Runoff Versus Recharge	King County	TBD	0.00	0.00		General Agency Funds	high
WQ - 2 Data Needs	King County Dept. of Natural Resources in DCMP		0.00	0.00	APF		high
WQ - 6 Artificial Recharge	City of Issaquah	TBD	0.00	0.00		General Funds	high
WQ - 6 Artificial Recharge	Sammamish Plateau	TBD	0.00	0.00		General Funds	high
WQ - 7 Reservation	GWAC	No addition	0.00	0.00	APF		high
OS - 1 Nitrate Concerns	Management Committee	TBD	0.00	0.00	APF		high
OS - 4A Operation and Maintenance	SKCHD	0.04	0.00	0.00	APF		high
SA - 2 Basic WHPP	DDES Code Development	0.56	0.00	0.00		General Funds	high
SA - 2 Basic WHPP	King County Dept. of Natural Resources	0.50			APF		high
SA - 2 Basic WHPP	Management Committee	0.00	0.00	0.00	APF		high
ST - 2A, 2B, 2C Ground Water Quality Concerns - Facility Requirements, Study, Monitoring	King County Dept. of Natural Resources		0.00	0.00	APF	General funds	high
WQ - 1A Policies and Ordinances	King County Dept. of Natural Resources	0.25	0.00	0.00	APF	General Funds	high
WQ - 1A Policies and Ordinances	Ecology	0.06	0.00	0.00		General Funds	high
HM - 1 State Hazardous Waste Plan-Implementation	King County Dept. of Natural Resources		0.00	0.00	APF		high
OS - 2B Hazardous Materials	SKCHD	0.04	0.00	0.00	APF		high
OS - 3A Household Hazardous Wastes	SKCHD (LHWMP)	0.13	0.00	0.00	APF		high
SA - 1A Elimination of categorical exemptions to SEPA	City of Issaquah	0.25	0.00	0.00		General Funds	high
SA - 1A Elimination of categorical exemptions to SEPA	King County Dept. of Natural Resources (Task 1,2,3)	0.25	0.00	0.00	APF		high

Table 3.8.1 Implementation Priority

Management Strategy	Agent	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
SA - 1B Designation of Environmentally Sensitive Areas	DDES Code Development	0.13	0.00	0.00		General Funds	high
SA - 1B Designation of Environmentally Sensitive Areas	King County Dept. of Natural Resources	0.25	0.00	0.00	APF		high
SA - 1C Adoption of General Policies	City of Issaquah	TBD	0.00	0.00		General Funds	high
SA - 1C Adoption of General Policies	King County Office of Strategic Planning	0.04	0.00	0.00		General funds	high
SA - 1D Enhanced environmental review to protect aquifers	City of Issaquah	TBD				General Funds	high
SA - 1D Enhanced environmental review to protect aquifers	King County Dept. of Natural Resources	0.50	0.00	0.00	APF		high
SA - 1E Define and Map Areas	City of Issaquah	TBD	0.00	0.00		General Funds	high
SA - 1E Define and Map Areas	DDES Code Development	0.06	0.00	0.00		General Funds	high
SA - 1E Define and Map Areas	King County Dept. of Natural Resources	1.00	0.00	0.00	APF		high
ST - 4C Coordination Between Surface and Ground Water Planning Efforts: King County	King County Dept. of Natural Resources	0.25	0.00	0.00	APF		high
ST - 5 Assessment of Stormwater Facilities	City of Issaquah	TBD	0.00	0.00		General Funds	high
ST - 5 Assessment of Stormwater Facilities	King County SWM	TBD	0.00	0.00		General funds	high
PF - 2A Pesticide and Fertilizer Use	Conservation District	0.87	0.00	0.00	APF		high
SP - 1C Leakproof Piping	King County Dept. of Natural Resources		0.00	0.00	APF		high
SW - 1 Standards	SKCHD	0.04	0.00	0.00		General funds	high
WC - 1A State Program	City of Issaquah	TBD	0.00	0.00		General funds	high
WC - 1A State Program	Ecology	0.64	0.00	0.00		General funds	high
WC - 1A State Program	Sammamish Plateau	TBD	0.00	0.00		General funds	high
WQ - 3 Water rights	City of Issaquah	TBD	0.00	0.00		General Funds	high
WQ - 3 Water rights	Sammamish Plateau	TBD	0.00	0.00		General Agency Funds	high
UST - 1A, 1B Augment State UST Program	King County Dept. of Natural Resources	1.50	0.00	0.00	APF		high
OS - 4B Operation and Maintenance	SKCHD	0.50	0.00	0.00	APF		high
UST - 2A Exempt Tanks	King County Dept. of Natural Resources	0.08	0.00	0.00	APF		high

Table 3.8.1 Implementation Priority

Management Strategy	Agent	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
UST - 2B Exempt Tanks	King County Dept. of Natural Resources	0.08	0.00	0.00	APF		high
OS - 2A Commercial Hazardous Materials	SKCHD	0.25	0.00	0.00	APF		high
WQ - 4A Conservation	City of Issaquah	TBD	0.00	0.00		General Funds	high
WQ - 4A Conservation	DDES Code Development	0.22	0.00	0.00		General Funds	high
HM - 4 Hazardous Waste Contamination Sites	SKCHD	0.00	0.10	0.00	APF		medium
HM - 5 Implementation of the Uniform Fire Code	City of Issaquah	0.00	TBD	0.00		General Funds	medium
HM - 5 Implementation of the Uniform Fire Code	King County Fire Marshal	0.00	TBD			TBD	medium
HM - 5 Implementation of the Uniform Fire Code	King County Dept. of Natural Resources	0.00	0.50	0.00	APF		medium
HM - 6 Implementation of the Emergency Planning and Community Right-to-Know Act	King County Dept. of Natural Resources (Task 3)	0.00	0.25	0.00	APF		medium
HM - 6 Implementation of the Emergency Planning and Community Right-to-Know Act	King County Dept. of Natural Resources (Task 5)	0.00	0.06	0.00	APF		medium
HM - 6 Implementation of the Emergency Planning and Community Right-to-Know Act	King County: Emergency Management (Task 1)	0.00	TBD	0.00		TBD by King County Office of Emergency Management	medium
HM - 7A Transportation-Related Hazardous Materials Spills-Purveyor Assessment	City of Issaquah	TBD	0.00	0.00		General Funds	medium
HM - 7A Transportation-Related Hazardous Materials Spills-Purveyor Assessment	Sammamish Plateau (Task 1)	TBD	TBD	0.00		Purveyor funds	medium
HM - 7B Transportation-Related Hazardous Material Spills-Management Committee Evaluation	King County Dept. of Natural Resources (Task 4)	0.00	0.08	0.00	APF		medium
UST - 1C Augment State UST Program	King County Dept. of Natural Resources	0.00	0.08	0.00	APF		medium
PF - 2B Pesticide Reduction Program	Cooperative Extension					General Funds	medium
PF - 2B Pesticide Reduction Program	Management Committee		0.00	0.00	APF		medium
ST - 7 Soil Amendment	King County Dept. of Natural Resources	0.00	0.25	0.00	APF	Centennial Clean Water Fund grant	medium

Table 3.8.1 Implementation Priority

Management Strategy	Agent	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
ST - 4A Coordination Between Surface and Ground Water Planning Efforts: Ecology Programs	Ecology	0.00	0.32	0.00		General funds	medium
WQ - 4B, C Conservation	SKCHD		0.08	0.00	APF		medium
ST - 4B Coordination Between Surface and Ground Water Planning Efforts: Puget Sound Water Quality Action Team	Puget Sound Water Quality Action Team	0.00	0.00	0.00		General Agency Fund	medium
HM - 2 Dangerous Waste Management Unit Setback	Ecology	0.00		0.00	APF		medium
BSE - 1 Guideline Revision	Ecology	0.00	0.00	0.24		General Funds	low
WC - 2A Well Identification	King County Dept. of Natural Resources	0.00	0.00	0.08	APF		low
WC - 2B Well Identification	King County Dept. of Natural Resources	0.00	0.00	0.08	APF		low
WC - 3A Decommissioning cost	King County Dept. of Natural Resources	0.00	0.00	0.13	APF		low
WC - 3B Decommissioning cost	Ecology	0.00	0.00	0.14		General Agency funds	low
SP - 1B Sewer Maintenance Programs	King County Dept. of Natural Resources	0.00	0.00		APF	General Agency funds	low
SP - 2 Groundwater depletion - Backfill	King County Dept. of Natural Resources	0.00	0.00		APF		low
WC - 1B State Program	Ecology	0.00	0.00	0.64		General Agency Funds	low
WC - 1B State Program	SKCHD	0.00	0.00	0.50	APF		low
C - 1 Information - Studies	King County Dept. of Natural Resources	0.00	0.00	0.04	APF		low
SP - 1A Infiltration and Exfiltration	King County Dept. of Natural Resources	0.00	0.00	0.50	APF	General Agency funds	low
ST - 6 Roadway Runoff	King County DOT	0.00	0.00	TBD		Unfinished Agenda	
TOTAL		16.25	1.73	2.34			

Table 3.8.2

Implementing Agencies

Issaquah Creek Valley
Ground Water Management Plan

March 1999

Table 3.8.2 Implementing Agencies

Management Strategy	Agency	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
PF - 2C Pesticide and Fertilizer Use	City of Issaquah	TBD	0	0.00		Agency	high
SG - 1 Regulatory Modifications	City of Issaquah	TBD	0	0.00		Agency	high
SG - 3A Land Use of Inactive or Reclaimed Mines	City of Issaquah	TBD	0	0.00		Agency	high
SG - 3B Zoning code - Reclamation plans	City of Issaquah	TBD	0	0.00		Agency	high
WQ - 6 Artificial Recharge	City of Issaquah	TBD	0	0.00		Agency	high
Education	City of Issaquah	0	0	0.00		Agency	high
ST - 1 Runoff Versus Recharge	City of Issaquah	TBD	0	0.00		Agency	high
DCM - 1 Data Collection Analysis and Management	City of Issaquah (task 1)	TBD	0	0.00		Agency	high
SA - 1A Elimination of categorical exemptions to SEPA	City of Issaquah	0	0	0.00		Agency	high
SA - 1C Adoption of General Policies	City of Issaquah	TBD	0	0.00		Agency	high
ST - 5 Assessment of Stormwater Facilities	City of Issaquah	TBD	0	0.00		Agency	high
SA - 1E Define and Map Areas	City of Issaquah	TBD	0	0.00		Agency	high
WC - 1A State Program	City of Issaquah	TBD	0	0.00		Agency	high
WQ - 3 Water rights	City of Issaquah	TBD	0	0.00		Agency	high
	City of Issaquah	TBD	0	0.00		Agency	high
HM - 5 Implementation of the Uniform Fire Code	City of Issaquah	0	TBD	0.00		Agency	medium
HM - 7A Transportation-Related Hazardous Materials Spills-Purveyor Assessment	City of Issaquah	TBD	0	0.00		Agency	medium
SA - 1D Enhanced environmental review to protect aquifers	City of Issaquah	TBD				Agency	high
SUBTOTAL FOR CITY OF ISSAQUAH		1	0	0.00			
PF - 2A Pesticide and Fertilizer Use	Conservation District	1	0	0.00	APF		high

Table 3.8.2 Implementing Agencies

Management Strategy	Agency	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
SUBTOTAL FOR CONSERVATION DISTRICT		1	0	0.00			
PF - 2B Pesticide Reduction Program	Cooperative Extension		No additional			Agency	medium
SUBTOTAL FOR COOPERATIVE EXTENSION		0	0	0.00			
SG - 3B Zoning code - Reclamation plans	DDES Code Development	1	0	0.00		Agency	high
PF - 2C Pesticide and Fertilizer Use	DDES Code Development	1				Agency	high
SA - 2 Basic WHPP	DDES Code Development	1	0	0.00		Agency	high
SA - 1B Designation of Environmentally Sensitive Areas	DDES Code Development	0	0	0.00		Agency	high
SA - 1E Define and Map Areas	DDES Code Development	0	0	0.00		Agency	high
WQ - 4A Conservation	DDES Code Development	0	0	0.00		Agency	high
SUBTOTAL FOR DDES		2	0	0.00			
DCM - 1 Data Collection Analysis and Management	King County Dept. of Natural Resources (Task 1) Non-FTE Costs	2	0	0.00	APF		high
UST - 1A, 1B Augment State UST Program	King County Dept. of Natural Resources	2	0	0.00	APF		high
DCM - 1 Data Collection Analysis and Management	King County Dept. of Natural Resources (Task 2, 3, 4)	1	0	0.00	APF		high
SA - 1E Define and Map Areas	King County Dept. of Natural Resources	1	0	0.00	APF		high

Table 3.8.2 Implementing Agencies

Management Strategy	Agency	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
ED - 1,2,3 Education Program	King County Dept. of Natural Resources	1	0	0.00	APF		high
SG - 2A, 2B Aquifer Impacts	King County Dept. of Natural Resources	1	0	0.00	APF		high
SA - 2 Basic WHPP	King County Dept. of Natural Resources	1			APF		high
SA - 1D Enhanced environmental review to protect aquifers	King County Dept. of Natural Resources	1	0	0.00	APF		high
WQ - 1A Policies and Ordinances	King County Dept. of Natural Resources	0	0	0.00	APF	Agency	high
ST - 4C Coordination Between Surface and Ground Water Planning Efforts: King County	King County Dept. of Natural Resources	0	0	0.00	APF		high
SA - 1B Designation of Environmentally Sensitive Areas	King County Dept. of Natural Resources	0	0	0.00	APF		high
SA - 1A Elimination of categorical exemptions to SEPA	King County Dept. of Natural Resources (Task 1,2,3)	0	0	0.00	APF		high
SA - 3 Sole Source Aquifer Petition	King County Dept. of Natural Resources	0	0	0.00	APF		high
SG - 3A Land Use of Inactive or Reclaimed Mines	King County Dept. of Natural Resources	0	0	0.00	APF		high
SG - 3B Zoning code - Reclamation plans	King County Dept. of Natural Resources	0	0	0.00	APF		high
PF - 2C Pesticide and Fertilizer Use	King County Dept. of Natural Resources	0	0	0.00	APF		high
UST - 2A Exempt Tanks	King County Dept. of Natural Resources	0	0	0.00	APF		high

Table 3.8.2 Implementing Agencies

Management Strategy	Agency	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
UST - 2B Exempt Tanks	King County Dept. of Natural Resources	0	0	0.00	APF		high
PF - 1A Pesticide and Fertilizer Past Use	King County Dept. of Natural Resources		0	0.00	APF		high
PF - 1B Pesticide and Fertilizer Past Use	King County Dept. of Natural Resources (DCMP)		0	0.00	APF		high
WQ - 2 Data Needs	King County Dept. of Natural Resources in DCMP		0	0.00	APF		high
ST - 2A, 2B, 2C Ground Water Quality Concerns - Facility Requirements, Study, Monitoring	King County Dept. of Natural Resources		0	0.00	APF	Agency	high
HM - 1 State Hazardous Waste Plan-Implementation	King County Dept. of Natural Resources		0	0.00	APF		high
SP - 1C Leakproof Piping	King County Dept. of Natural Resources		0	0.00	APF		high
HM - 5 Implementation of the Uniform Fire Code	King County Dept. of Natural Resources	0	1	0.00	APF		medium
HM - 6 Implementation of the Emergency Planning and Community Right-to-Know Act	King County Dept. of Natural Resources (Task 3)	0	0	0.00	APF	Centennial	medium
ST - 7 Soil Amendment	King County Dept. of Natural Resources	0	0	0.00	APF	Clean Water Fund grant	medium
HM - 7B Transportation-Related Hazardous Material Spills-Management Committee Evaluation	King County Dept. of Natural Resources (Task 4)	0	0	0.00	APF		medium

Table 3.8.2 Implementing Agencies

Management Strategy	Agency	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
HM - 6 Implementation of the Emergency Planning and Community Right-to-Know Act	King County Dept. of Natural Resources (Task 5)	0	0	0.00	APF		medium
UST - 1C Augment State UST Program	King County Dept. of Natural Resources	0	0	0.00	APF		medium
WC - 3A Decommissioning cost	King County Dept. of Natural Resources	0	0	0.13	APF		low
SP - 2 Groundwater depletion - Backfill	King County Dept. of Natural Resources	0	0		APF		low
SP - 1B Sewer Maintenance Programs	King County Dept. of Natural Resources	0	0		APF	Agency	low
C - 1 Information - Studies	King County Dept. of Natural Resources	0	0	0.04	APF		low
SP - 1A Infiltration and Exfiltration	King County Dept. of Natural Resources	0	0	0.50	APF	Agency	low
WC - 2A Well Identification	King County Dept. of Natural Resources	0	0	0.08	APF		low
WC - 2B Well Identification	King County Dept. of Natural Resources	0	0	0.08	APF		low
SUBTOTAL FOR King County Dept. of Natural Resources		9	1	0.82			
DCM - 2 Data Collection Analysis and Management	Ecology	0	0	0.00		Agency	high
WQ - 1A Policies and Ordinances	Ecology	0	0	0.00		Agency	high
WC - 1A State Program	Ecology	1	0	0.00		Agency	high
ST - 4A Coordination Between Surface and Ground Water Planning Efforts: Ecology Programs	Ecology	0	0	0.00		Agency	medium

Table 3.8.2 Implementing Agencies

Management Strategy	Agency	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
HM - 2 Dangerous Waste Management Unit Setback	Ecology	0		0.00	APF		medium
BSE - 1 Guideline Revision	Ecology	0	0	0.24		Agency	low
WC - 3B Decommissioning cost	Ecology	0	0	0.14		Agency	low
WC - 1B State Program	Ecology	0	0	0.64		Agency	low
SUBTOTAL FOR ECOLOGY		1	0	1.02			
WQ - 7 Reservation	GWAC	No additional	0	0.00	APF		high
SUBTOTAL FOR GWAC		0	0	0.00			
SG - 1 Regulatory Modifications	King County	TBD	0	0.00	APF		high
ST - 1 Runoff Versus Recharge	King County	TBD	0	0.00		Agency	high
SA - 1C Adoption of General Policies	King County Office of Strategic Planning	0	0	0.00		Agency	high
ST - 5 Assessment of Stormwater Facilities	King County SWM	TBD	0	0.00		Agency	high
HM - 5 Implementation of the Uniform Fire Code	King County Fire Marshal	0	TBD	TBD		TBD	medium
HM - 6 Implementation of the Emergency Planning and Community Right-to-Know Act	King County: Emergency Management (Task 1)	0	TBD	0.00		TBD	medium
ST - 6 Roadway Runoff	King County DOT	0	0	TBD		Unfinished Agenda	
SUBTOTAL FOR OTHER KING COUNTY AGENCIES		0	0	0.00			
OS - 1 Nitrate Concerns	Management Committee	TBD	0	0.00	APF		high
SA - 2 Basic WHPP	Management Committee	0	0	0.00	APF		high

Table 3.8.2 Implementing Agencies

Management Strategy	Agency	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
PF - 2B Pesticide Reduction Program	Management Committee		0	0.00	APF		medium
Management Committee Tasks: SA - 2, WC - 3A, HM - 7B, PF - 2B, OS - 1	Management Committee	1	0	0.00	APF		
SUBTOTAL FOR MANAGEMENT COMMITTEE		1	0	0.00			
ST - 4B Coordination Between Surface and Ground Water Planning Efforts: Puget Sound Water Quality Action Team	Puget Sound Water Quality Action Team (PSWQA)	0	0	0.00		General Agency Fund	medium
SUBTOTAL FOR PSWQA		0	0	0.00			
Education	Sammamish Plateau	0	0	0.00		General Agency Fund	high
WQ - 6 Artificial Recharge	Sammamish Plateau	TBD	0	0.00		Agency	high
DCM - 1 Data Collection Analysis and Management	Sammamish Plateau (task 1)	TBD	0	0.00		Agency	high
WC - 1A State Program	Sammamish Plateau	TBD	0	0.00		Agency	high
WQ - 3 Water rights	Sammamish Plateau	TBD	0	0.00		Agency	high
HM - 7A Transportation-Related Hazardous Materials Spills-Purveyor Assessment	Sammamish Plateau (Task 1)	TBD	TBD	0.00		Purveyor funds	medium
SUBTOTAL FOR SAMMAMISH PLATEAU		0	0	0.00			
DCM - 1 Data Collection Analysis and Management	SKCHD (task 1)	1	0	0.00	APF		high
OS - 4A Operation and Maintenance	SKCHD	0	0	0.00	APF		high
OS - 2B Hazardous Materials	SKCHD	0	0	0.00	APF		high
OS - 3A Household Hazardous Wastes	SKCHD (LHWMP)	0	0	0.00	APF		high
SW - 1 Standards	SKCHD	0	0	0.00		Agency	high

Table 3.8.2 Implementing Agencies

Management Strategy	Agency	Priority High FTE Estimate	Medium Priority FTE Estimate	Low Priority FTE Estimate	AP Fund	Other Fund Source	GWAC ranking
OS - 4B Operation and Maintenance	SKCHD	1	0	0.00	APF		high
OS - 2A Commercial Hazardous Materials	SKCHD	0	0	0.00	APF		high
HM - 4 Hazardous Waste Contamination Sites	SKCHD	0	0	0.00	APF		medium
WQ - 4B, C Conservation	SKCHD		0	0.00	APF		medium
WC - 1B State Program	SKCHD	0	0	0.50	APF		low
SUBTOTAL FOR SKCHD		1	0	0.50			
TOTAL		16	2	2.34			

Appendices

Appendix A: Public Comment

Appendix B: Letters of Concurrence or Comment

Issaquah Creek Valley
Ground Water Management Plan

March 1999

Appendix A

Public Comment

Issaquah Creek Valley
Ground Water Management Plan

March 1999

Issaquah GWMA Hearing Transcript
April 13, 1995

Welcome to the Issaquah Creek Valley Ground Water Management Area Program and I would like to welcome you to the hearing tonight. Let the record show that it is 9:10 p.m. April 13, 1995, and this hearing is being held in Issaquah at the Clark Elementary School. Again the primary purpose of this hearing is to take comments on the draft Issaquah Creek Valley Ground Water Management Area Program. The legal notice for this hearing was published in the *Washington State Register* on April 5, 1995. Notices were also published on or about the same date in the *Issaquah Press* and the *Bellevue-Journal American*. In addition, notices were mailed out to about 150 people, interested parties, or firms and copies of the plan were mailed out about the first of April. Again, if you would like to speak, please fill out one of the cards over there on the table and give it to me and we will put you on the bottom of the stack here and get to you in order. Because this is a hearing and not a workshop, we won;t respond to your questions, if you have a question that you want answered, please go ahead and ask it and we will respond to it in writing later on. We won't respond necessarily tonight but we do reserve the right, however, to ask you clarification questions to make sure we understand what you are saying. When it is your turn to speak, come up here and identify yourself and whom you might represent and one speaker at a time. It is not a platform to be arguing with the audience, so we wanted to make that clear too. So, when I call your name, just please on come up and identify yourself and whom you represent.

The first person is Dick Harms. My name is Dick Harms and I live in Providence Point which of course is in the Sammamish Plateau Water District; and most of you are probably aware King County has started herbicide spraying they're planning on starting on the south end of the county and working north. They're using Oust? and Roundup in their spray presumably they'll get to the Issaquah Valley aquifer about the latter part of next month, so it's highly unlikely that this plan will be approved anytime to stop them from spraying. Their using Oust and Roundup. Roundup is class 1 with a danger warning and Oust is class 3 with a caution warning. Now, there's no doubt that these herbicides are highly toxic the only question is how much of this stuff gets into the ground water. The manufacturers makes some general safety claims, self-serving type of safety claims which you would naturally expect however, there's no way to calculate the amount that gets into ground water because of the many complicated variables. Some of these variables are soil type, soil p.h., soil microbiology, soil temperature, rain fall type of vegetation, aquifer geology, and of course the type of herbicide. What is needed is continuous monitoring of all wells, all major wells for all types of herbicides and pesticides in addition of course to all the other pollutants that we have to worry about. Another questions that none of the agencies face up to is possible synergistic inter-reaction between the hundreds of herbicides and pesticides and believe me there's more being put on the market everyday. So maybe there's thousands I know of at least hundreds. Now the animal kill tests they use for to determine the toxicity of these herbicides and pesticides is

one at a time. In other words they get 50% animal kill with a given concentration of herbicide or pesticide. But they never test them in combination, of course the testing problem would be fantastically when you consider the permutations of and combinations of hundreds maybe thousands of different chemicals. It interesting to note that there is some epidemiological studies of the effect of herbicides on human beings and apparently there is a high correlation between herbicide exposure and digestive cancer, genetic cancer, and lymph system cancer. Seems to me that since human health is involved the burden of proof is on the people who want to expose the public to these toxic substances. The County is presently prohibited from spraying in the recharge areas of Vashon Island, Maury Island, and the Snoqualmie Valley. I think there is no fundamental reason why we should not have the same protection also, of course, the County spraying and recharge areas is an extremely bad example, I just don't understand how they can justify this and it effectively undermines the entire ground water education program. Of course, the answer is they want save money the County of course is trying roundup $300 million dollars for a Mariners Stadium. I urge everyone to write to Larry Kimble, of the King County's Roads Department urging him not to spray in our recharge area. Incidently, I have the phone number and address of these people if anybody would like to get it from me I would be glad to oblige. Hopefully when this plan is approved, the road people will be prohibited from spraying in our recharge areas. Now, in conclusion I would like to make a few quick general comments. Seems to me that the basic problem with ground water is that its a case of out of sight out of mind. However, everyone should remember that this is the water that they and their families drink. With a rapidly increasing population, we will have a serious problem in the near future unless we take step now to limit usage and pollution of our aquifer. I don't know when this is going to happen but I feel fairly confident that based on historical data, of aquifers back East and other part of the country sooner or later we are going to have a limitation in our aquifer, both pollution and usage. As a matter of fact, it looks to me like Issaquah is selling water they don't have. When our water supply deteriorates, as it inevitably will, our property values will also deteriorate. Finally, I would like to say, it behooves all of us to protect the aquifer and support the Issaquah Valley Creek Ground Water Management Plan. Thank You.

Doug Rushton: Thank You. The next person to speak is Mr. **Ken Rau**

Good evening my name is **Kent Rau** and I'm the representing the Overdale Water Association. I'm currently the manager for that system. I maintain a certified license by the State of Washington for Overdale Water and Lake Ellis West by Falls City. I appreciate the efforts of this committee to keep on top these water issues. Overdale is concerned about what we see, what we read, and what we hear. Overdale Water Association is a small community owned and operated provider located between Issaquah and Sammamish Plateau Water and Sewer Districts. We're not very big in

some cases nobody know we exist. We have current services of 135 active hookups and we have obligations for a 160 in the final size of the district. We have water rights and water certificates that date back to the mid 1950's. This issue we're going through does not surprise me. On September 15, 1986, we transmitted our concerns about additional water usage from our common aquifer to Mr. Mark Spar, of Water District 82 at that time. Also, this was transmitted to Mr. Roy Bishop, District Manager, Department of Water Resources. We still have the same concerns. How we recognize a water rights does not guarantee the artisan flow of our southeast 56th Street well. We can then document that our well down there, some physical installations not changed since it's installation in 1958. We have in fact because of concerns done water conservation procedures and we've installed water meters, and in fact our water usage per home is probably 25% of what it was in 1975. We have recent evidence of changes in behavior of our common aquifer. On certain occasions the artisan outflow has ceased to appear; and I would like to remind everybody that I've been associated with that system since 1975 and I'm very familiar with that particular well's characteristics. Last summer and last fall, this fall however, the artisan outflow ceased to flow in our well. Overdale Water Association believes this change is directly attributable to the increase drawing of water from our common aquifer by other users. Lake Sammamish Plateau Water and Sewer District contracted with Carr & Associates to conduct pumping tests under first wells installed near I-90. The report documents that in fact the code of influence of their pumping tests could been seen as far north as our Southeast 56th Street well and please be reminded that the pumping test was only a 72 hour test. Since then, Lake Sammamish Plateau Water District has increased its yearly average acre-feet taken from the common aquifer by more than four times the amount which was in affect on the pumping tests were conducted. Since that time another well has been installed and tested and is either on line or is ready to go line when they have that need. Changes have been made by the Issaquah Water System over the years however, I or Overdale does not have much information on that. While the physical dimensions of our water system have not changed, dynamic results of changes to the aquifer caused by external conditions effecting the visual artisan outflow has been noticed by Overdale. We hereby respectively request that before this group or any group wants to allocate any new or additional increased water to any current or future use in the area receiving water from the Issaquah aquifer, that a formal study be in honor taken to ensure Overdale Water Associations and our users are not negatively impacted. The trustees of the Overdale Water Association and the Overdale community consider this matter to be critical and in need of immediate consideration. Thank you.

Doug Rushton: Thank You. The next speaker is **James W. Johnston.** Who I don't see here now so he must have left. Mr. Johnston are you here? Ok, we'll move to the next person, who is **Norm Nielson.** Ok, Mr. Nielson apparently has left as well. The next person to speak is Mr. David Bush.

My name is **David Bush.** I'm a local resident and I've read the summary of the committee's report and I would like to complement the committee first of all on the report and I very much support the idea of conserving and protecting the aquifer that we are all living above. My concern with the aquifer is two fold. One with quantity and the other with quality but I'm a geologist I earn my living seeking water and seeking oil in the past not currently employed with that capacity but in looking for water sources one thing that I am noting as an admission in the report is truly seeking water sources within the bedrock. The report states that the bedrock is mostly impervious my concern, and I'm not just pressing this concern because I have any hope that there's a larger water supply down there some where, the supply is pretty well measurable right now, my concern is that we have drawn an outline essential of the watershed for Issaquah Creek and we're calling that the management area. My concern is that there maybe supply and the lower Issaquah Valley wellhead protection plan testing that was done two years ago showed that there's real gaps in the water balance that may be coming from subbasement flow that is, flow that is from the bedrock. There are a couple of features in the Issaquah aquifer that could contribute to that. One is the Tiger Mountain syncline and this syncline basically runs from the toward the top of Tiger Mountain towards the northwest Lake Sammamish's lies within that syncline, axial folds in that syncline could very well be contributing to the water supply in the lower Issaquah Valley aquifer if that's true there's a good possibility of more recharge up on the upper parts of Agar Mountain also from Squak Mountain and currently those are shown as relatively low recharge areas for potential. One of the other things is that the syncline is made up of sedimentary rocks again the idea that they are impervious doesn't go along with the fact that we mine coal here for about 90 years; coal is a soft sediment and soft sediments are associated with other impermeable sediments. When they mine the coal here, they mine down just to the level of the current creek and it didn't go deeper because they have water problems they mine from the creek level up. It's much easier in that we can drain the water out of the mouths of those coal mines which leads me to believe that there is some contribution from those sediments. The other possible contributor is more recent discovery that there a large fault system in Seattle fault that trends through the lower end of Lake Sammamish and that fault system could be a tremendous conduit of water for much farther east than the current management plan shows. Both of those may contribute to the lower Issaquah aquifer and if they do, we need to be aware of that and be protecting and conserving where ever that source is as well. The other thing has to do with the drawdown and the cycling that we started to see last year. If the drought conditions continue we may see and certainly if our usage continues to rise we are going to continue to see some of those shallower wells. Every time we have a drawdown in the form of calling it depression that draws in surface contaminants that we haven't seen much movement in the past. The lower Issaquah Valley has a wellhead protection plan that has been put out in draft form that shows a one, five, and ten year zone of influence and once we start creating those cones

around those shallow wells, that zone of influence is going to increase or steepen and will draw in more and more contaminants, potential contaminants, there is I think 19-20 known underground storage tank many of which have leaked in the past, there's still some surface contamination associated with those as we cycle those shallower wells forming those cones each summer and fall we're going to draw more and more of that into the areas of our pumping. That's my secondary concern on the quality. Once again, I would like to complement the committee's report and if we could all continue to conserve and protect the aquifer that we've got I think that's our main focus. Thank you.

Doug Rushton: Thank you. The next person we have to speak is Dave Garland.

Dave Garland. I'm here as a citizen tonight. I have fifteen years experience with the State Department of Ecology as a Hydrogeologist. I was also a member of the Bear Creek Ground Water Management Advisory Committee for over a year if I recall. I found that the pace of things was rather slow after many meeting, very little had been accomplished and I see that the results now, ten years after the designation of Redmond and Issaquah as ground water management areas having proposals to do things that should have been done under the previous grant. This grant is the product, this document, is the product of the $300,000 dollar grant. Many of the items within recommend such things as five and six hundred dollar letters why weren't such letters written during the period of the grant? I look at this list of proposals and really the meat of this is in the center were the management strategies are listed with cost. I noticed in your poster display at the break, the price tag was not given at the bottom of each proposed items. One of the items is a $225,000 cemetery study. A study to see if burying people, $228,000 which would be covered by the Centennial Clean Water Fund, cigarette tax monies and the aquifer protection fund which is essentially monies from a taxing district that would be established in this ground water management area. So we are talking about raising taxes here, and this same study is also proposed in Redmond, and I'm wondering if a couple of other areas have this study proposed that we have this million dollar study of the effect of cemeteries on ground water quality. One of my biggest problems and I'm all for ground water quantity and quality protection but when I see government agencies gone awry with gold-plated scheme that do very little to protect ground water but rather enrich county health agencies and other agencies. Then I have to cry foul. Many of the programs here don't pertain to Issaquah such as seawater intrusion. What are we doing with seawater intrusion in Issaquah? Again, the cemetery study. There may be cemeteries in Issaquah there are two cemeteries in Redmond and right next door we have a large municipal well. This well is sampled regularly for long list of parameters and nothing has been found related to the cemetery. In fact, today caskets today are buried today in large concrete vaults; there has been no contamination in the Redmond wells which are shallow the material around the

cemetery is very permeable if anything was coming out it would have been shown by the sampling of those wells. So, and I'm not sure if any local studies are proposed here or if we would simply be looking at the literature perhaps for Woodlawn Cemetery in New York, I don't know. Anyway that cemetery is mentioned here in the document. The problems have not really been defined. Do we have contamination here from on-site systems, sewer pipes, hazardous waste, pesticides? Very expensive proposals are being put forth for what I see are non-existent problems. One of the big ones for me is that many of the things proposed are already in place. There a lot of what is proposed in this plan is redundant with existing government functions. The problem of Overdale's artisan well should be dealt with by existing programs, Water Resources, Department of Ecology, should be right on that and at least explain to you that flowing, that the condition of your well flowing is not a guarantee by the water right as long as you can, the laws refers to reasonable pumping lift and as long as you can pump the same amount of water that you've always enjoyed which you can as I know even after a well stops flowing if the water level is a foot below the surface the well stills functions typically as it always has, so the condition of flowing is not a guarantee but I can understand the concerns when water levels drop I would watch that to and I think that your Department of Ecology should be taking care of that for you. It does not require hundreds of thousands of dollars in the program. Well, I think I've already said many, many of the proposed tasks do nothing for water quality or water quantity but rather primarily enrich the King County Health Department. I'm all for the King County Health Department; I work with staff people there, I respect the staff as professionals and yet I think this whole proposal needs to be gone over very carefully and the gentleman said earlier, many of the functions can be made more efficient things that are being done now need to be re-prioritized with Issaquah's ground water in mind. Thank you.

Doug Rushton: Thank you. That was the last of the cards that I have. Is there anyone else that would like to fill out a card and speak? Are you sure? Going, going, ok. I have no other names of people that want to testify. All testimony presented tonight will receive equal weight with any written comments we receive and if you would to submit additional or other written comments, submit them either to Bill Lasby or myself please by June 16, 1995. Both of our address are over here on some notecards. Excuse me, on some sheets of paper over there. Again be sure we have them by June 16. After the comment period, after June 16, what we'll be doing is the lead agency, Seattle-King County Health, will take all the comments they receive from effective governments and the public, consolidate those and give them to the GWAC. The GWAC resolves areas of nonconcurrency if there are any and they submit them to Ecology for certification. Again, our intent at some point is to combine this ground water stuff with the studies, the watershed basin, water excuse me, basin assessments and maybe do a regulation on this. If we do that we will go

through another hearing process and that will be open to the public as well as this. Ok. If I or any of the Seattle-King County staff or Kathryn can be a help to you after this please stop us we would be happy to talk with you. Appreciate your time in coming to this and your comments it's been a valuable use of time. And last chance and this is for sure, for the hearing part. Ok, let the record show that it's 9:38 p.m. and this hearing is adjourned.

gwma\king\issaquah\issahrg.sum
Gwma #3: king\issaquah\issahrg.sum

June 7, 1995

King County Dept. of Environ. Health
Attn: Carl Osaki, Chief
King Co. Environmental Health Division
201 Smith Tower, 506 2nd Avenue
Seattle, WA. 98104

BERNARD
DEVELOPMENT COMPANY

RE: Issaquah Creek Valley Ground Water Management Plan

This two inch thick document appears to contain Management Strategies and Programs that will prevent the surface use of land that has been planned to receive growth in the King County Comprehensive Plan. This is done by mistakenly defining all land in the Plan area as a "Single Source Aquifer," and as an "Environmentally Sensitive Area," and the entire drainage basin as an "Aquifer Recharge Area.". Suddenly, existing polices already adopted for situations elsewhere by the County, not ever intended to apply in mass to this huge land area, would restrict the planned growth that is intended here by the King County Comprehensive Plan to accommodate GMA growth requirements).

My personal background is that of a Mining Engineer, Colorado School of Mines (plenty of geology here), and a real estate developer having years of experience dealing with development (including ground water and aquifer issues) in Issaquah and Preston.

The aquifer under Issaquah is fed by water coming through glacial deposits beneath hillsides southwest, south, southeast, east, and northeast of Issaquah. This is not a "Single Source Aquifer".

While Environmentally Sensitive Areas exist within the defined aquifer basin, the entire land area is not an Environmentally Sensitive Area. Freeways, the town of Issaquah, Lake Sammamish, and both developed and undeveloped lands exist here, that are not "Environmentally Sensitive Areas."

One could claim that any drop of water falling on land could be a source of aquifer recharge, but this would be a mistake. Aquifers in this case obtain their water from different surface and ground water sources. Issaquah actually has several separate aquifers beneath it, separated by hard compacted impervious layers of consolidated earth material and clay. Preston has aquifers of its own, with water sources unrelated to aquifers south and north of Issaquah. There is not one aquifer in this defined region with one large homogeneous "Aquifer Recharge Area." Parts of the land area just has ground water below, not significantly recharging the various aquifers. One example is Lake Sammamish, fed by surface and ground water. If all the land area in the defined study area was an Aquifer Recharge Area, Lake Sammamish would be recharging the aquifer(s), and there would never be any threat of an aquifer water shortage (unless Lake Sammamish dried up), because for all practical purposes "aquifer areas" beneath Issaquah are well below the surface level of Lake Sammamish; the lake itself would be the only aquifer recharge ever needed for Issaquah.

If the Issaquah Creek Valley Ground Water Management Plan is adopted without change, growth intended (and planned for) in the newly adopted King County Comprehensive Plan would be frustrated by policy and program conflicts between the Comprehensive Plan and the Issaquah Creek Valley Ground Water Management Plan.

In addition to being geologically incorrect, defining the entire Issaquah Creek Ground Water Management Plan area as a Single Source Aquifer and the entire area as a "Critical Area," and the whole basin as an "Aquifer Recharge Area" (as this Plan does) would (when combined with associated polices in this Plan and elsewhere for the use of these terms) prevent the very growth accommodated and planned for in the recently passed King County Comprehensive Plan and the related growth planned for and passed by the King County Council this past December, and by the city of Issaquah, meeting requirements of the Growth Management Act.

Unless changes are made, special protection polices (intended just to apply to Vashon Island, the only defined single source aquifer when the Comprehensive Plan was passed) and related new land use restrictions (when added to the Issaquah Creek Valley Ground Water Management Plan area, by also defining this as a single source aquifer) would unnecessarily place new growth limits on the land in the Issaquah Creek Ground Water Management Plan Area. This is the entire City of Issaquah, all of the Grand Ridge Area, a major Urban portion of the Sammamish Plateau, and the industrial area in Preston.

I-90 / Preston Industrial Park
8110 304th Avenue SE
Preston, Washington 98050
206-222-7979 Fax: 206-222-7970

BERNARD
DEVELOPMENT COMPANY

For example, the Plan says "Each ground water management plan, according to WAC 173-100, must contain management strategies to address the perceived threats to ground water quality and quantity in the planning area." This statement does not mean areas should be improperly defined as Single Source Aquifers, Critical Areas, or be improperly defined as an Aquifer Recharge Area. The rule of reasonability comes into play here. Dealing with perceived threats does not mean applying unreasonable measures or untrue definitions and resulting unreasonably restrictive new land use restrictions. Other than relatively small water rights (compared to a very large water supply), the Plan does not address overall quantity use needs (present or future) or any statement of an overall potential sustainable quantity supply (that could exist with efficient new strategically located wells tapping the various aquifers in the Plan Area).

There are additional deficiencies. For example, the Preston Industrial Park Water Association (a Class A purveyor), is not identified as such. Water rights listed in the plan omit existing known legal and vested water rights in the Preston area, and likely elsewhere.

By defining the entire basin as a Sole Source Aquifer, restrictions of the Federal Safe Drinking Water Act of 1974 come into play. By (mistakenly) calling the entire basin a Special Protection Area, major use and development restrictions of the Water Resources Act of 1971 apply, and RCW 90.48, and Water Pollution Control polices. New unnecessarily restrictive polices or regulations could be adopted that would (through a well head protection program) prevent the surface use or development of land within a 10-year time of ground water travel to the well from the recharging area. This could be nearly all land in the Plan Area, not available for use. Another unnecessary restriction is that Categorical exemptions (small land uses exempted from SEPA rules) are eliminated when the entire basin is designated an Environmental Sensitive Area, as proposed. If this was passed, SEPA analysis would have to be done even for the periodic use of Washington Department of Agriculture-approved chemicals to maintain a utility or transportation right-of-way in its design condition [i.e., no more salting I-90 in snow conditions, without an EIS]. Best Management Practices would apply to all small farms; extremely onerous to those farmers. **Calling the entire basin a Special Protection Area is not reasonable.**

Perhaps most concerning, is that Appendix A of the Plan says "POLICIES, PLANS, AND REGULATIONS (available upon request)." But when we contacted the Lead Agency (Seattle-King County Health Department, Environmental Health Division, Ground Water Section), we were told this was a misprint mistake. We were told NO POLICIES, PLANS, AND REGULATIONS EXIST FOR REVIEW BY THE PUBLIC. See the attached Exhibit A page.

One wonders if the idea is to have the County Council pass the Plan in its broad sense, then have the Department of Health adopt just about any Policies, Plans, and regulations it wishes; independent of what the County Council might intend.

This plan contains new land use restrictions that substantially reduce growth planned for in both Urban and Rural areas of the Issaquah Plan Area. While some actions are prudent, we understand that ESHB 1010 provides that rules may only be adopted as specifically authorized by state or federal law. A subtle part of this Plan may be to restrict land use unnecessarily. If so, it is appropriate to pay newly restricted land owners for their loss of land use caused by unnecessarily increased land use restrictions.

What is the purpose of newly preventing the surface use and development of that land in the Issaquah Ground Water Area that is anticipated and accommodated by the Comprehensive Plan? There is no evidence that aquifer water is threatened with extinction, even though new wells are likely needed at strategic locations to tap added ground water sources. We feel that aquifer water use (through existing and new sustainable water rights) in the many aquifers contained here is only very partially used, due to an absence of a strategically located, tested, and developed well network. Has this potential been calculated? Estimated by experts? Have outside water sources (like the huge new North Bend water source for Seattle and Eastside communities) been considered as a substitute? For example, Bellevue used to be largely served by wells and Lake Washington water. Now the Bellevue service area is served by water sources from outside of Bellevue. The cost of using outside water sources may be far less than the value of land use restricted unnecessarily (if polices in the present draft of the **Issaquah Creek Valley Ground Water Management Plan** were adopted without study and change).

BERNARD
DEVELOPMENT COMPANY

The whole issue of water supply in the Issaquah Ground Water Area may be one of properly developed infrastructure, not new land use restrictions.

The implementation cost of this plan (see Table 4.8.1) paid by Issaquah, the County, others, and new fees on taxpayers and land owners are not determined or even estimated, due to missing elements.

For reasons explained above, this Plan should not be adopted in its present form, and it should be stated in the Plan that no new rules exist; meeting requirements of ESHB 1010. The Plan should only be adopted when clearly stated list of policies, plans, rules and regulations that are specifically authorized by state or federal laws are referenced, and that those adopted accompany the Plan and first receives a thorough public review and hearing, prior to those adoptions. At the same time, the Plan is a good start, bringing up issues to deal with. Many of these issues (correction of important technical inaccuracies, land use planning conflicts with proposed restrictions, definition of present overall water use, potential new in-basin sources, future need estimates, and coordination with the proposed Issaquah Creek Valley Ground Water Management Plan) need to be dealt with prior to adoption of this Plan. If this is not done, property owners' land use will be unnecessarily restricted by this plan.

What is needed is an attainable and sustainable Water Supply Plan to meet all planned land use needs in the planning area, as a crucial element of this Ground water Management Plan. This does not mean all government owned and operated water supplies (for all elements), and this should not mean that private parties (or small groups acting together) cannot develop their own independent and private water supplies. More likely, Urban areas will have more "central public" sources. Rural Areas will have more, smaller independent water sources.

So far, this Ground Water Management Plan seems to focus heavily on new land use restrictions, not new development of existing and new water sources to meet growth infrastructure requirements of the Growth Management Act, to support land use plans. Before adoption of this Plan, major new revisions are needed, those listed above and pulling together new water sources with the goal and plan of meeting and attaining all land use potential in the Plan Area, for the present adopted land use plans. As provided in the Growth Management Act, the land use plan comes first -- then the plan to provide adequate utilities and infrastructure. The whole GMA idea is to plan land use, utilities and other infrastructure for the growth, not to plan to limit growth due to existing or marginally increased utility capacity.

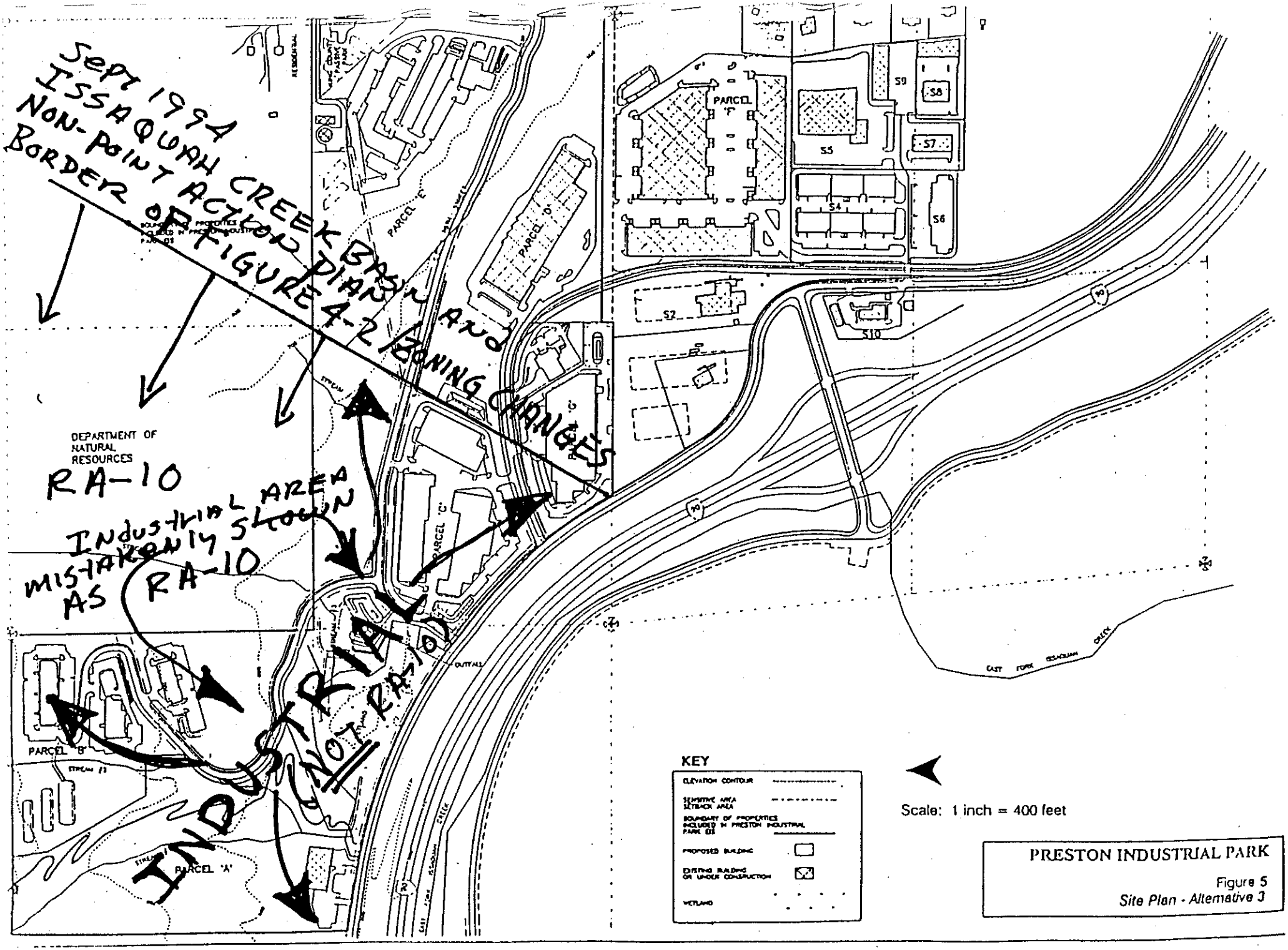
So far the **Issaquah Creek Valley Ground Water Management Plan** is deficient, containing more big picture errors and restrictions to growth than it does planing for new water supplies to meet growth needs. New strategies, aggressive new water supply planning, and other key changes are needed before this Plan is considered for adoption. We are planning for major new residential and work populations in the Plan Area, particularly the Urban portions. Even though some may not support this as a goal, this is the task. More work is needed. It would be a mistake to adopt this plan now, in its present state or with only minor tune-ups.

Sincerely,

J. Thomas Bernard
President

Enclosure: **6/7/95 comments on the Issaquah Creek Basin and Nonpoint Action Plan**
Preston Industrial Park Site Plan

CC (with enclosures): William J. Lasby, Project Manager; Seattle-King Co. Health Dept.
Paul Shallow, Env. Health Specialist; Seattle-King Co. Health Dept.
King County Council
Preston Industrial Associates, Ed Wolfe
Preston Industrial Park Water Association members


Sept 1994
ISSAQUAH CREEK BASIN AND
NON-POINT ACTION PLAN
BORDER OF FIGURE 4-2 ZONING CHANGES
DEPARTMENT OF
NATURAL
RESOURCES
RA-10
INDUSTRIAL AREA
MISTAKENLY SHOWN
AS RA-10
INDUSTRIAL
NOT RA-10
PARCEL 'F'
PARCEL 'E'
PARCEL 'D'
PARCEL 'C'
PARCEL 'B'
PARCEL 'A'
S1
S2
S4
S5
S6
S7
S8
S9
S10
OUTFALL
EAST FORK ISSAQUAH CREEK
KEY
ELEVATION CONTOUR
SENSITIVE AREA SETBACK AREA
BOUNDARY OF PROPERTIES INCLUDED IN PRESTON INDUSTRIAL PARK 03
PROPOSED BUILDING
EXISTING BUILDING OR UNDER CONSTRUCTION
WETLAND
Scale: 1 inch = 400 feet
PRESTON INDUSTRIAL PARK
Figure 5
Site Plan - Alternative 3

June 7, 1995

Jim Kramer, Division Manager
King Co. Dept. of Public Works
Surface Water Management Division
700 Fifth Avenue, Suite 2200
Seattle, WA. 98104

BERNARD
DEVELOPMENT COMPANY

Re: Issaquah Creek Basin and Nonpoint Action Plan

I just became aware of this Plan, reading the September 1994 version one week ago. Apparently this Plan is due for review by the State Department of Community Trade and Economic Development, then action by the King County Council. **Please do not take fast action, and first consider the following comments. Prior changes are needed and the scope of the Plan needs to be changed.**

This plan contains new land use restrictions that substantially reduce growth planned for in both Urban and Rural areas of the Issaquah Creek Basin. While some actions are likely needed (to avoid increased low lands flooding), we understand that ESHB 1010 provides that rules may only be adopted as specifically authorized by state or federal law. A subtle part of this Plan may be to restrict uplands storm drainage to be greater than the natural amount, to reduce lowlands flooding. If so, it is appropriate to pay upland owners appropriately for their increased land use restrictions (as their land development occurs with extra costs for extra water detention, extra infiltration, and extra land set aside for these extra storm drainage control purposes).

Where new rules are adopted, those actions should be deferred or delayed until King County and Issaquah have planned and zoned additional property for new growth, replacing what new development is restricted by this Plan. New restrictions in the Plan are on major land areas, with no identification of the total amount of new development that could not occur if the Plan is adopted (compared to what could occur without adoption of the Plan). Other errors in the plan should also be corrected prior to adoption. More information follows.

It would be a growth management error to adopt new regulations and restrictions restricting major areas of growth that are planned for in the King County and Issaquah comprehensive plans -- unless new property is first planned and zoned for replacement growth, to offset the growth potential lost through these new regulations. The process should be to 1) identify what total growth amount is restricted in each zoning category, 2) identify new replacement growth areas and zoning, then 3) concurrently pass amendments to the King County Comprehensive Plan and establish new zoning, at the same time the Issaquah Creek Basin Plan (and those new restrictions) are adopted.

Yes, it is important to avoid flooding and maintain reasonable storm drainage water quality. But it is equally important to do so while maintaining growth that has been planned for and committed to by both jurisdictions in their Comprehensive Plans; their share of the 20 year supply called for in the Growth Management Act, and without violating the spirit or letter of ESHB 1010, or acting precipitously before ESHB is effective.

This Issaquah Creek Basin planning area is a major portion of King County, approximately 10 miles long and 8 miles wide (about 80 square miles), in the heart of King County. The town of Issaquah is the center of the Issaquah Creek Basin Planning Area. About half of the Planning Area land is in King County's designated Urban Area, and half is designated Rural. This is a major planned urban and rural growth area in King County.

For watershed management purposes, this Plan recommends changing the present King County Comprehensive Plan, Issaquah's Comprehensive Plan, and related polices to restrict development that would otherwise occur on the affected land area.

Assuming that both Issaquah and King County's Comprehensive Plans (implementing GMA) were sufficient but not over-abundant with new development planning and zoning for the next 20 years of growth, before the Watershed Plan was implemented, each jurisdiction now needs to plan and zone for compensating locations where the newly prevented growth can be relocated. In this adoption, citations should also be included, stating where any rules that are adopted are specifically authorized by state or federal law.

Under The Growth Management Act, King County and each sub-jurisdiction, is required to accommodate (with plans, sufficient usable land and zoning, and infrastructure) the State's projected growth in population and jobs in King

P.90 Preston Industrial Park
18110 304th Avenue SE
Preston, Washington 98050
206 222 7979 Fax 206 222 [illegible]

BERNARD
DEVELOPMENT COMPANY

County, for the next 20 years. But by restricting growth by adding restrictions, the Issaquah Creek Basin and Nonpoint Action Plan frustrates and prevents use of property that was planned for in adoption of recent comprehensive plans. The Watershed plan is quite clear in stating that substantial new development (that would otherwise occur) would be prevented in both urban and rural areas by adoption of the new policies and restrictions contained in the Plan.

For this reason and to be consistent with requirements of the Growth Management Act, at a minimum and before Watershed Plan adoption, King County and Issaquah should each identify the growth amount that could be prevented by these polices; then simultaneously adopt Comprehensive Plan revisions that provide for equal new substitute growth locations (inside the Urban Growth Boundary for urban growth that is restricted, and in the Rural Area for rural growth that is restricted); to offset growth opportunities that are lost due to new regulations and policies contained in the Issaquah Creek Basin and Nonpoint Action Plan [or subsequent implementing rules].

This Plan also has some notable inaccuracies that require correction, before Plan adoption. For example, a major portion of in-town Issaquah is inaccurately mapped (Figure 4.3) as 25 year and 100 year flood plain (the new 51 acre Trammel Crow shopping Center property on Gilman Boulevard). With first hand knowledge as a former owner's representative of this same property, I personally know the existing site elevation is well above a 25 and 100 year flood plain. King County's DDES flood plain mapping information is not accurate for this property, and may not be accurate elsewhere in the Basin planning area. The recently completed shopping center on this site is proof that no 25 or 100 year flood plain exists here, or no building permit would have been issued. This error example calls into question the accuracy of all flood plain maps contained in the Plan.

The Plan also omits Preston industrial zoning designation (on Property owned by Preston Industrial Associates, "PIA"), by mistakenly mapping this property (Figure 4.2) at the east end of I-90 in the Planning area as RA-10; and recommending that existing zoning of properties be changed to show zoning indicated on the map. This PIA property was rezoned to industrial (I) from RA-10, in the process of adopting of the current King County Comprehensive Plan. Those owners are not anticipating a surprise down zone to RA-10, or a conflict in policy or rules wording that would encourage someone to oppose development on their property, based on this new Watershed Plan. PIA is planning legal new development, based on King County's recent extensive environmental review and return of this property to Industrial zoning (January 1995).

Are there other zoning mis-designations or surprise new designations in new "recommended zonings" of the Issaquah Basin Plan that might catch owners unaware? Have the owners of designated rezone land been directly notified of this proposed new zoning change? Have those owners been directly asked and given the opportunity to address their position on these issues?

Another conflict is that the Plan recommends that the County and City of Issaquah purchase easements on private property (BW 7.2, pages 4-17 and 4.18)) for a 100 foot wide natural corridor along streams (not counting stream width) and later adding public access, trails, and picnic areas. But BW 5 (page 4-12) calls for a 100 foot wide buffer on each side of certain streams and wetlands, with no compensation to the owner. One policy takes 100 feet, the other policy takes 200 feet. One policy calls for payment to the owner, the other does not. These conflicts need to be fixed, with it made clear that payment is provided and property not restricted when easements are not purchased; even if development is not recommended.

Recommended clearing restrictions on existing lots (BW 3.1, page 4-6) would create non-SAO (King County Sensitive Areas Ordinance) open space requirements (with no payment to the owner) where the owner could not harvest timber, clear the land, or locate their house or other buildings at their own selected location on their property; to take their own selected advantage of terrain, views, water sources, access restrictions, farming locations, utilities, wetlands, or better building ground conditions. BW 3.2, page 4-9, (clearing restrictions) would prevent cutting trees and locating a house or buildings in the best location, if there is less than 65% tree cover on the lot. If there is only one or a few trees on a lot, in the wrong location, or a wetlands where the trees do not exist, the lot could for all practical purposes be unusable for new development. Is this not a new Property Rights taking, a "rule" prohibited by ESHB 1010?

The challenge here is how to deal with Issaquah Basin flooding and water quality issues using methods that work and are as specifically permitted by state or federal law, but still providing the 20 years of designated growth property,

BERNARD
DEVELOPMENT COMPANY

without placing undue burdens and costs on private property owners to accommodate public needs. State and Federal law may exist in some flood plain areas, but are not known to exist on simple "steep hillsides," or for cutting trees on private land when proper forest practices are observed and required permits are obtained.

Most likely, to implement a revised version of this Plan, greater density will need to be provided in Urban Areas (like Issaquah), and by expanding the Urban Area boundary, and by providing for islands of growth in rural areas. But it is a planning and legal growth management and ESHB 1010 mistake to pass plans depending on growth to occur in planning areas, then pass regulations amounting to rules further restricting growth -- unless compensating new growth areas are provided and unless those restrictions are specifically provided for in state or federal laws. This is supposed to be the discipline of the Growth Management Act, requiring jurisdictions to plan for 20 years of growth, not to make the 20 year growth plan, then make new regulations that restrict and limit that growth to less than a 20 year supply. ESHB has a similar intent, to avoid new unauthorized "rules" from restricting land use.

In summary, this Plan needs work and repositioning. From a policy standpoint, the County Council and City of Issaquah should either designate new up zone substitute growth locations prior to adoption of this Plan as policy, or state that this Plan will not become effective until substitute growth land is designated and zoned. And even those actions should be limited to what ESHB 1010 permits.

If this is not done, I believe the County and Issaquah would be violating Growth Management Act requirements that it designate and zone land for 20 years of growth, because they would be taking land planned for growth property away from use (by adding new growth restrictions and regulations, restricting growth), within only a few months of adopting their new "GMA compliant" Comprehensive Plans. And ESHB 1010 would be violated.

Finally, this Issaquah Creek Basin and Nonpoint Action Plan (for surface water) comes at a time when the Issaquah Creek Valley Ground Water Management Plan (for sub-surface water) is also being reviewed. There are even greater problems with the Issaquah Creek Valley Ground Water Management Plan in its present form. But in any case, both plans need to be coordinated and reviewed together. Otherwise policies may conflict or unwarranted restrictions (corrected in one plan) may not be corrected in the other plan. Both plans deal with substantially the same land area. Our comments on the Issaquah Creek Valley Ground Water Management Plan are also attached.

Sincerely,

J. Thomas Bernard
President

Enclosure: 6/7/95 comments on the Issaquah Creek Valley Ground Water Management Plan
Preston Industrial Park Site Plan

CC (with enclosures): Ike Nwankwo, State Growth Mgmt Planner;
Dennis Canty, Project Manager; Surface Water Mgmt.
King County Council
Preston Industrial Associates, Ed Wolfe

HELLER EHRMAN WHITE & McAULIFFE

ATTORNEYS

A PARTNERSHIP OF PROFESSIONAL CORPORATIONS

6100 COLUMBIA CENTER
701 FIFTH AVENUE
SEATTLE
WASHINGTON 98104-7098

FACSIMILE (206) 447-0849
TELEPHONE (206) 447-0900

WRITER'S DIRECT DIAL NUMBER
(206) 389-6210

ANCHORAGE
LOS ANGELES
PALO ALTO
PORTLAND
SAN FRANCISCO
TACOMA

June 20, 1995

Mr. Bill Lasby, Project Manager
Seattle-King County Department of Public Health
Environmental Health Division, Ground Water Section
Smith Tower
506 Second Avenue, Room 201
Seattle, Washington 98104

RE: Draft Issaquah Creek Valley Ground Water Management Plan

Dear Mr. Lasby:

This firm represents the Edgehill Water Association (the "Association") in connection with groundwater issues. Through this letter, I am submitting Edgehill Water Association's comments on certain issues in the draft Issaquah Creek Valley Ground Water Management Plan (the "Plan") proposal which was made available for public review on April 13, 1995.

By way of background, the Edgehill Water Association is a non-profit Washington corporation formed in 1952. The Association's purpose is to provide and manage domestic water for the 38 homes it serves in the Edgehill neighborhood of Issaquah. (The attached map show the neighborhood's location.) The Association is governed by a 6-member board that meets regularly. The Association employs a water systems technician, conducts weekly water monitoring, and complies with all state and county regulations with respect to water quality. Although it is difficult to determine the exact location of the boundaries of the Groundwater Management Area in the Plan, the Association believes that a portion of its membership may be affected.

The Association has rights to appropriate groundwater from three wells located within the neighborhood for its community domestic water supply. The Association's ground water appropriation rights are confirmed by the three Certificates of Water Rights issued by the Department of Ecology. The priority dates for the certificates are: June 23, 1954 (Permit No. 3524), February 3, 1956 (Permit No. 4034), and May 13, 1974 (Permit No. G1-21627P). The attached map shows the well locations.

As a general matter, the Edgehill Water Association supports the joint efforts of the state and local agencies in developing a comprehensive plan to protect the quality and quantity of groundwater in the Issaquah Valley. The Association is concerned that continued development in the Issaquah Valley could negatively impact the quality and quantity of groundwater. The reason for our interest is simple: the quality and quantity of the Association members' domestic water supply depends on proper management of this resource.

General Comment. The Association does however have a number of concerns that some of the proposals in the Plan could affect the water rights held by the Association. Since the 1950s when the State of Washington granted the Association groundwater rights, the Association has functioned efficiently, safely and with little or no impact on surrounding areas. As the Ground Water Advisory Committee is aware, the Washington State legislation authorizing the development of ground water management plans and programs specifically states that such plans "shall not affect any water rights existing as of May 21, 1985." RCW 90.44.440. All of the Association's water right permits establish priorities before 1985. Thus, any provision or proposal in the Plan that affects the Association's existing water rights would be unlawful. Moreover, the Plan itself states as one of its objectives the need to be consistent with Washington's groundwater management laws. Plan at 1-3.

Specific Comments. With this general concern in mind, the Association has several specific comments on the Plan.

1. The Committee should clarify the boundaries of the plan and determine whether the Association's wells are within the Plan area. The Edgehill neighborhood lies on the far western edge of the proposed boundary. As a result, it is difficult to determine from the maps and descriptions whether any portion of the Association's membership may fall within the boundaries of the proposed Plan's boundaries. We request a clarification as to whether the Edgehill neighborhood falls within the boundaries of the Plan area. The locations of the wells are given in the water rights permits.

Furthermore, if as part of the data gathering tasks identified on page 2-15 the Committee determines that the Association's water usage does not impact the Issaquah aquifer, the Committee should exclude the entire Association from the Plan's boundaries.

2. The Association objects to user fees for septic systems within the proposed area. On pages 4-5 to 4-6 of the Plan, the Committee proposes establishing an Aquifer Protection Fund to support many of the proposals in the Plan. The Association

opposes any proposal that would impose fees on the Association's domestic water supply. The Plan states that "users that benefit should [financially] support the GWMP." Plan at 4-5. It is for this very reason that fees should not be imposed on the Association's water supply: the Association does not benefit from the programs in the proposed Plan.

The Association is responsible for maintaining the quality of the groundwater that its members use for domestic purposes. The potability of the Association's domestic water is regularly tested in compliance with all regulations. This testing is paid for by Association members who remit an annual water fee to maintain the system. Any contamination from the Association member's septic systems would affect the Edgehill neighborhood water prior to entering the groundwater at a lower elevation. The Association monitors water quality frequently and its members are conscious that it is in their best interests to maintain septic systems properly so that the neighborhood's domestic water remains potable. Because of the frequent monitoring and care by the Association members not to contaminate their drinking water, additional septic system fees charged to the Edgehill Association members by the county are not justified.

The Association also objects to the proposal to assess fees based on the amount of ground water withdrawn. The Association's ground water permits confirm the Association's rights to the groundwater. When it applied for these permits, the Association paid all required fees. Any proposal to assess fees for appropriations guaranteed by these permits would be an unlawful attempt to affect the Association's vested rights in these permits. It would also violate RCW 90.44.440 which, as quoted above, provides that the Plan "shall not affect any water rights existing as of May 21, 1985."

The Association further objects to the imposition of fees in light of the conclusion in the Draft Summary Report that "ground water quality in the Issaquah Ground Water Management Area basin is generally excellent." Draft Summary at 1-6. If the groundwater quality is already excellent, the existing groundwater users should not be assessed fees to address either non-existent problems or problems that would only arise from new sources of contamination. The Association's members have assumed the responsibility and the expense of maintaining their domestic water supply system; they should not also have to bear the cost of maintaining other systems. Furthermore, the Draft Plan omits the amount of the proposed fees. See Plan at 4-6. The Association cannot provide meaningful comment on the proposal to assess fees without knowing the amount of the fees.

3. The Association objects to meters on private wells to monitor withdrawals from the aquifer. At pages 3-131 to 3-142 of the Plan, the Committee has proposed requiring the installation of meters on private wells to monitor water usage. The Association believes that this requirement is unnecessary and an unlawful restriction on the Association's water right permits. As stated above, because the Edgehill neighborhood is on the far western edge of the proposed Plan area, the Edgehill Water Association may not have any impact on the Issaquah aquifer and should not be subject to any metering requirements on private wells. In addition, monitoring would infringe on the water rights granted by the Department of Ecology. Although the Department of Ecology can require metering of ground water withdrawals as a condition of a new water right permit, Ecology cannot impose such a condition on existing water right permits. The statute states, "[Ecology] may require withdrawals of groundwater to be metered ... as a condition of a new water right permit." RCW 90.44.450 (emphasis added). To impose such a requirement on an existing source would unlawfully affect the water rights vested in the Association.

* * *

Thank you for considering these comments. The Association would appreciate additional notice about further developments regarding the Plan and how we may respond to potential effects on our neighborhood water system. Please send copies of all future correspondence and relevant public notices to me at the above address and Craig Gillin, President, Edgehill Water Association, 19032 SE 63rd Place, Issaquah, Washington 98027.

Sincerely,

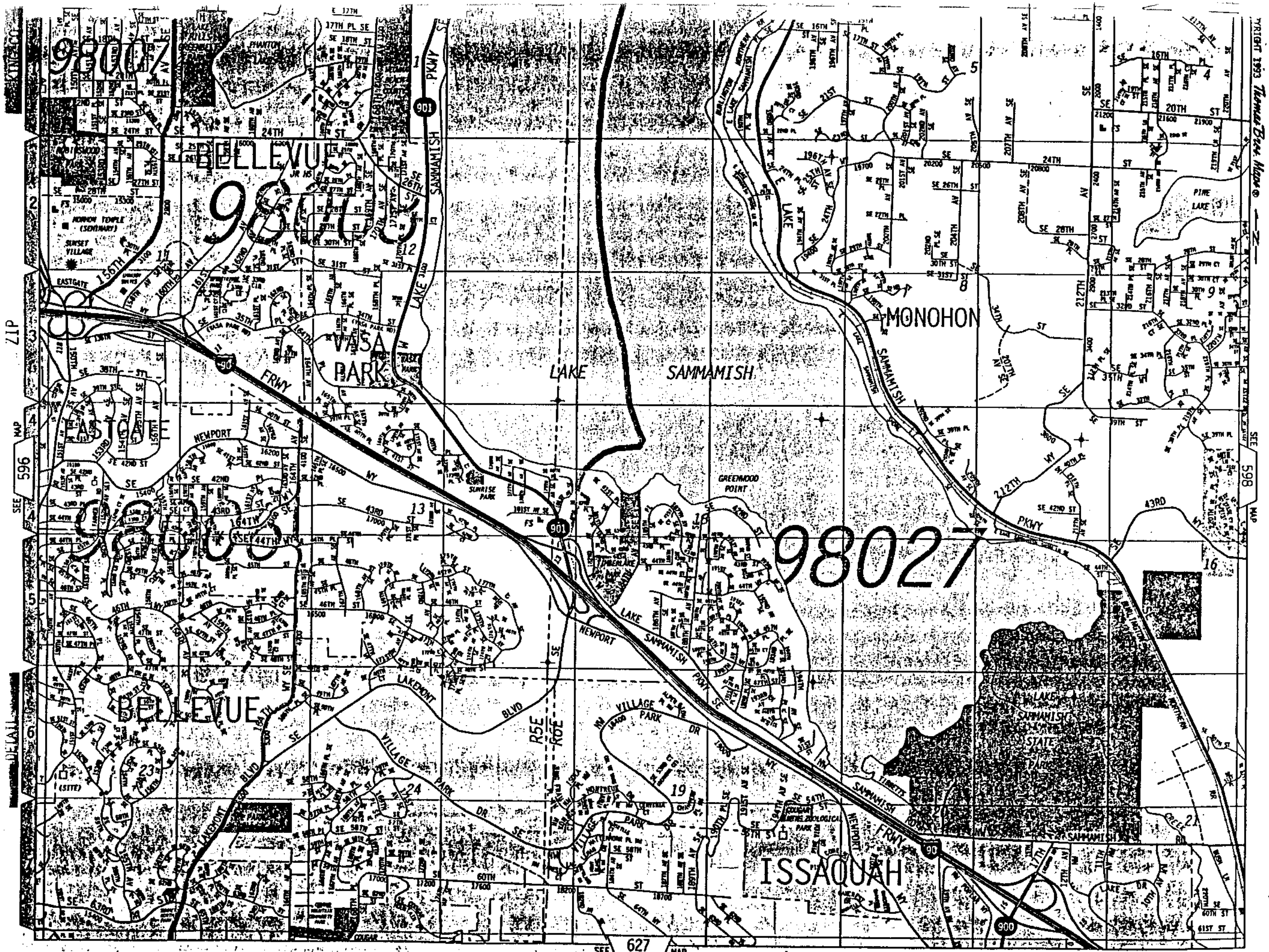
HELLER EHRMAN WHITE & McAULIFFE

Andrew M. Kenefick

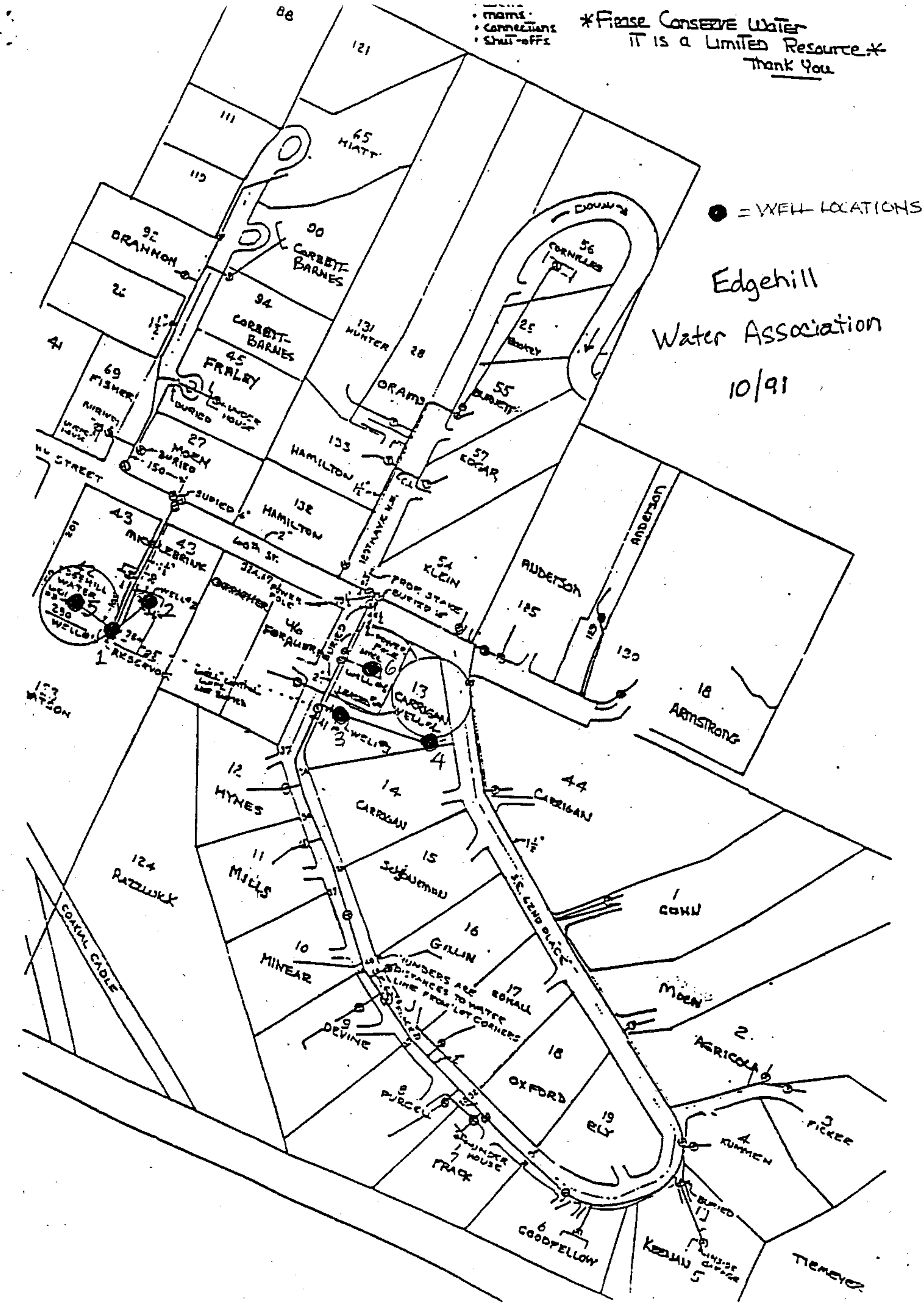
Andrew M. Kenefick

Attachments

cc: Steve Clark, City of Issaquah
Doug Rushton, Washington State Dept. of Ecology



98007
98006
98027
BELLEVUE
VASA PARK
LAKE SAMMAMISH
MONOHON
ISSAQUAH
LAKE SAMMAMISH STATE PARK
PINE LAKE
GREENWOOD POINT
SUNRISE PARK
SUNSET VILLAGE
EASTGATE
NEWPORT
LAKEMONT BLVD
VILLAGE PARK DR
E LAKE SAMMAMISH PKWY
W LAKE SAMMAMISH PKWY
LAKE SAMMAMISH PKWY SE
I-90 FRWY
SEE 596 MAP
SEE 598 MAP
SEE 627 MAP
ZIP
DETAIL
R5E
R6E
COPYRIGHT 1993 Thomas Bros. Maps



• mains
• connections
• shut-offs
*Please Conserve Water
It is a Limited Resource*
Thank You
● = WELL LOCATIONS
Edgehill
Water Association
10/91
88
121
111
65 HIATT
119
92 BRANNON
90 CORBETT-BARNES
94 CORBETT-BARNES
131 HUNTER
28
56 CORNILLES
DOWNS
25
55 BURNETT
41
69 FISHER
45 FRALEY
BURIED
PUMP HOUSE
ORAMS
27 MOEN
BURIED
150
133 HAMILTON
57 EDGAR
STREET
132 HAMILTON
BURIED
43
MICKLEBRINK
43
60th ST.
2"
127th AVE N.E.
54 KLEIN
ANDERSON
ANDERSON
WELL 2
WELL 1
WELL 5
RESERVOIR
1
2
5
GALLAGHER
46 FORAUER
POWER POLE
PROP STAKE
BURIED
125
130
18 ARMSTRONG
WELL 6
6
13 CARRIGAN
WELL 4
WELL 3
3
4
WATSON
12 HYNES
14 CARRIGAN
44 CARRIGAN
124 RAZWICK
11 MILLS
15 SCHUERMAN
1 COHN
COAXIAL CABLE
10 MINEAR
16 GILLIN
NUMBERS ARE DISTANCES TO WATER LINE FROM LOT CORNERS
17 BOHALL
MOEN
9 DEVINE
18 OXFORD
2 AGRICOLA
8 PURCELL
PUMP HOUSE
7 FRACK
19 ELY
3 FICKER
4 KUMMEN
6 GOODFELLOW
BURIED
5 KEOHAN
TIEMEYER

Appendix B

Letters of Concurrence or Comment

Issaquah Creek Valley
Ground Water Management Plan

March 1999

King County
Department of Development
and Environmental Services
3600 - 136th Place Southeast
Bellevue, Washington 98006-1400

August 9, 1996

TO: Mark Issacson, Project Manager, Surface Water Management Division

FM: Robert S. Derrick, Director, Department of Development and Environmental Services

RE: Issaquah Creek Valley Groundwater Management Plan

Thank you for including the majority of the revisions we requested to the November draft of the Issaquah Creek Valley Groundwater Management Plan (GWMP). With resolution acceptable to the Department of the following outstanding issues, the Department of Development and Environmental Services (DDES) will be able to concur with the plan:

1. Funding. The tasks assigned to DDES are identified to be funded by "General Agency Funds". As discussed in our previous comments, DDES is a fee-supported agency and needs specific funding to conduct any work that does not generate fees. An acceptable funding source will have to be identified for the agency to complete the assigned tasks or they are unlikely to be completed. We again request that the tasks be funded through the Aquifer Protection Fund or some other specific source.
2. Planning. The proposed draft removed some DDES tasks that were included in earlier drafts under the pretext that the Management Committee, which under the plan decides what action to take in these areas, may not decide to propose regulations. It is imperative that cost projections include the assumption that at least some of the decisions will include proposed regulations. Otherwise, these tasks are unfunded and unplanned; with little probability that they will ever be implemented. Particularly since the original plan recommendations were for regulations, it is inappropriate to not have contingency funding in the plan for these tasks.
3. Coordination with other GWMPs. Most of the tasks that are identified for DDES are consistent across all of the GWMPs. Where similar tasks exist, DDES concurs with the level of effort and proposed schedule identified in the Redmond Bear Creek GWMP; not with this plan. Since the completion of tasks identified under this one plan will complete the majority of the tasks identified for DDES in the other plans, the funding of these tasks should be shared across all plans.

It is our understanding that some of these issues will not be resolved until after the King County Council has reviewed and concurred with the plan. We look forward to working with the Management Committee to resolve any outstanding issues and move forward with a successful implementation of the plan. After the Council has reviewed and concurred with the plan, the outstanding issues have been resolved, and the funding has been secured, we look forward to implementation of the tasks identified for our agency.

RSD:js

cc: Catherine Moody, Chair, Ground Water Advisory Committee
Doug Rushton, Washington State Department of Ecology
Greg Kipp, Deputy Director, Department of Development and Environmental Services
ATTN: Jerry Balcom, Supervisor, Code Development Section
Mark Carey, Manager, Land Use Services Division
Tom McDonald, Manager, Building Services Division

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(206) 407-6000 • TDD Only (Hearing Impaired) (206) 407-6006

January 24, 1996

Trudy Rolla
Ground Water Management Plan Program
Surface Water Management Division
700 Fifth Avenue, Suite 2200
Seattle, Washington 98104

Dear Ms. Rolla:

Re: Draft Issaquah Creek Valley Ground Water Management Plan

I have reviewed the changes made to the draft Issaquah Creek Valley Ground Water Management Plan. The Department of Ecology concurs with the revised draft plan.

I look forward to working with you to certify and complete the Issaquah Creek Valley Ground Water Management Plan. I can be reached at 360/407-7255 if you have any questions.

Sincerely,

Laura H. Lowe

Laura H. Lowe
Environmental Planner
Shorelands and Water Resources Program

LL:ll

cc: Grant File

City of Issaquah
Post Office Box 1307
Issaquah, WA 98027-1307

(206) 391-1000
Fax: (206) 391-1036

December 19, 1995

Dr. Alonzo Plough, Director
Seattle-King County Health Department
Room 201 Smith Tower
Seattle, Washington 98104

Subject: Concurrence
Draft Issaquah Creek Valley Ground Water Management Plan

Dear Dr. Plough:

This letter presents the City's position of concurrence with the Draft Ground Water Management Plan as revised to address the previously stated (June 1995) issues. The City will work with other agencies to implement the plan where there is a clear benefit to the citizens of this community and as the City's budget allows.

It is the City's understanding that the revised plan recommends the formation of an Aquifer Protection Area (APA) to finance the implementation of the plan. This will require a ballot issue for those people located in the proposed APA.

The City looks forward to a cooperative effort in providing protection to the groundwater/drinking water for this community.

Sincerely,

Rowan Hinds, Mayor
City of Issaquah

cc: City Council
Sammamish Plateau Water and Sewer District
Greg Wilder, Public Works Director
Project/Day Files

RCH/stl

SAMMAMISH PLATEAU

WATER AND SEWER DISTRICT

Larry/Bill
good work

December 14, 1995

Dr. Alonzo L. Plough
Director
Seattle King County Department of Health
Environmental Health Division
Room 201 Smith Tower
Seattle, Washington 98104

RE: Issaquah Creek Valley Ground Water Management Plan

Dear Dr. Plough:

Please find enclosed a copy of Resolution No. 1897 expressing Sammamish Plateau Water and Sewer District's concurrence with the Issaquah Creek Valley Ground Water Management Plan. We are sending all agencies involved with the ground water management plan, a copy of the enclosed resolution for their files.

Please let me know if you have any questions.

Sincerely,

Ronald E. Little
General Manager

REL:dcp

Enclosure

95-12-56CONCRRNC.DOC

1510 - 228th Ave. S.E. • Issaquah, Washington 98029 • 392-6256 • Fax 391-5389

Do your part, be water smart.

SAMMAMISH PLATEAU WATER & SEWER DISTRICT
KING COUNTY, WASHINGTON

RESOLUTION NO. 1897

RESOLUTION OF THE BOARD OF COMMISSIONERS OF SAMMAMISH PLATEAU WATER AND SEWER DISTRICT, KING COUNTY, WASHINGTON, EXPRESSING CONCURRENCE WITH THE ISSAQUAH CREEK VALLEY GROUND WATER MANAGEMENT PLAN.

WHEREAS, the Seattle King County Dpartment of Health in conjunction with the Issaquah Creek Valley Ground Water Management Committee (GWAC) prepared a draft Issaquah Creek Valley Ground Water Management Plan (Plan)for the District's review and comment; and

WHEREAS, the GWAC requested that the District express its concurrence with the plan as provided for in applicable state law and administrative regulations; and the District Board of Commissioners having previously considered the Plan and having provided comments and a letter of non-concurrence to the GWAC regarding such Plan; and

WHEREAS, the Plan having been revised to address and include the District's comments and concerns to the District's satisfaction; now therefore,

BE IT RESOLVED, by the Board of Commissioners of Sammamish Plateau Water & Sewer District, King County, Washington, as follows:

1. The District concurs with the goals, provisions and procedures set forth in the Plan as revised.

2. District staff are hereby authorized and directed to provide a copy of this resolution of concurrence to the Seattle King County Department of Health, the GWAC, the King County Council, the City of Issaquah, and the King County Department of Public Works - Surface Water Management Division and to keep the Board further advised regarding the status, further adoption and implementation of such Plan.

ADOPTED at a regular open public meeting of the Board of Commissioners, Sammamish Plateau Water & Sewer District, King County, Washington, held on the 4th day of December 1995.

Jack H. Merritt, President

Gifford W. Miller, Secretary

Robert E. George, Commissioner

ATTEST:

Gifford W. Miller
Secretary of the board

I, the undersigned Secretary of the Board of Commissioners of the Sammamish Plateau Water and Sewer District of King County, Washington, do hereby certify that the within and foregoing is a true and correct copy of Resolution No. 1897, adopted at the regular open public meeting thereof held on the 4th day of December 1995.

Gifford W. Miller

City of Seattle
Norman B. Rice, *Mayor*

King County
Gary Locke, *Executive*

Seattle-King County Department of Public Health

MEMORANDUM Alonzo L. Plough, Ph.D., MPH, *Director*

October 9, 1995

TO: Laura Lowe, Department of Ecology
Catherine Moody, Chair of the Issaquah Creek Valley Ground Water Advisory Committee
Bill Lasby, Supervisor, Drinking Water and Ground Water Programs

FROM: Carl Osaki, Chief, Environmental Health Division

RE: **Draft Issaquah Creek Valley Ground Water Management Plan**

Thank you for the opportunity to review the draft Issaquah Creek Valley Ground Water Management Plan. The draft plan reflects a tremendous amount of work completed by the Ground Water Advisory Committee (GWAC), the project consultant, Parametrix Inc., the staff of the City of Issaquah and Sammamish Plateau Sewer and Water District.

Additionally, Seattle-King County Health Department staff have provided support as the lead agency to carry this process to the current draft stage. The Seattle-King County Health Department (SKCHD) recognizes the need for protection of the ground water of this region, and fully supports efforts to protect the ground water resources within this planning area.

After review of the draft plan by our Environmental Health Program Supervisors for content and impacts, we have assembled the following general and specific comments. Our comments are made in the hope of obtaining the best plan for this area and achieving Metropolitan King County Council acceptance of the document. Please note that our review of the plan focuses primarily on Chapter 3, the policies and actions to implement the plan. We, as the Seattle-King County Health Department, concur with the plan as written except where specifically noted below in our comments. We look forward to working with the GWAC, the City of Issaquah, and the Sammamish Plateau Sewer and Water District on a local level to implement the plan.

GENERAL COMMENTS:

1. Plan Implementation Funding

Our primary issue is the costs associated with carrying out this plan. While we realize that these costs are spread out over several years, the necessary funding is going to be

difficult to obtain at this time. Specifically, in a time of regulatory reform and government down sizing, requesting the citizens of an area to support a new program by a household based fee will be difficult. Without financial support secured, carrying out the implementation tasks identified to this department will place a financial burden on our existing funding sources, and possibly jeopardize other important public health programs we currently are carrying out. Our concurrence with this plan is conditional, subject to the establishment of the permanent funding source to implement and fully fund the plan recommendations.

2. **Lead Agency Role for Plan Implementation**

The Plan proposes that SKCHD be designated as the Lead Agency. However, the Metropolitan King County Council adopted a new organizational structure. This created a new Department of Natural Resources, and assigned the Surface Water Management Division responsibility for the ground water program. Even with this change, we want to maintain responsibility for those tasks directly related to protection of public health.

3. **Ground Water Management Area Plan Specificity**

The ground water management plan as drafted reflects a preventative public health focus on potential issues within the study area. This plan, along with others being developed within King County, attempted to address all potential contamination sources within the area, and structure policies and implementation actions from a county-wide focus. This has resulted in issues being raised in areas where there is no current problem as a way to support those issues in other areas. The thought process was that if all the areas were the same, implementation of programs and specific regulations would be easier to enact and carry out. We feel that this direction may have been in error, and to help sharpen the focus of the protective strategies within each area, some of the policies with no direct application within this planning area could be eliminated. This is not to say that we are targeting policies developed to prevent future contamination where there is no current problem. In our specific comments, we have identified certain actions we feel have no or very limited application to this planning area.

SPECIFIC COMMENTS:

1. **SA-3 Sole Source Aquifer Petition**: Seattle-King County Health Department will prepare and submit to the Environmental Protection Agency a petition for federal Sole Source Aquifer designation for the Issaquah Creek Valley Aquifer.

Response: We concur with the idea of a sole source aquifer being developed to protect the Issaquah Creek valley aquifer. However, with the transfer of the responsibilities of

this program to SWM, we do not feel that this is a role that the Seattle-King County Health should undertake in the implementation of the plan. Additionally, we understand that a citizen group has commenced preparing the designation request. We will support that effort with any information from our database to aid in the development of that proposal.

2. **DCM-1A Data Collection, Management, and Analysis Program:** The Lead Agency will develop and implement a Data Collection, Management, and Analysis Program.

Response: We concur with this task provided that adequate funding is provided to this agency for its possible future participation in the DCMP, and with the above amendment.

3. **ST-2C Ground Water Quality Concerns - Study:** King County and the City of Issaquah will jointly sponsor study of the effectiveness of the facilities described in ST-2B.

Response: We concur with this recommendation with the understanding that this study, if done, should be the responsibility of SWM. They have the knowledge, specific program responsibility, and the resources to more effectively handle the task.

4. **HM-1 State Hazardous Waste Plan - Implementation:** The GWAC adopts the following resolution: "The GWAC supports the findings and recommendations of the Washington State Hazardous Waste Plan. The GWAC requests that Ecology and the Washington State Legislature fund and carry out the provisions of the Plan with a sense of urgency in recognition of the threat posed to groundwater from hazardous wastes." The GWAC will communicate this resolution to the Director of Ecology, the Assistant Director for Waste Management, and the Washington State Legislature.

Response: We are concerned that this recommendation is no longer timely, and is low in overall importance. We could concur if this recommended management strategy is still timely, and if the plan was amended to say that this is implemented by being included in the plan, and no further action is necessary, similar to other support statements.

5. **HM-5 Implementation of the Uniform Fire Code:** King County and the City of Issaquah within the Issaquah Ground Water Management Area will:

- Commit staff and funding for comprehensive implementation of Article 80 in both new and existing facilities using both educational and regulatory approaches;
- Propose ordinances for adoption, if they have not already done so, that provide adequate enforcement tools to ensure compliance with Article 80 and that

restore the requirements for:

- Hazardous Materials Management Plans;
- Hazardous Materials Inventory Statements; and
- Storage requirements for "Carcinogens, irritants, sensitizers, and other health hazard solids, liquids and gases" found in Uniform Fire Code 80.315;
- Emphasize regulatory attention and educational activity in sensitive aquifer recharge areas.

Response: Given the numerous agencies involved in this recommended management strategy, we would suggest clarifying the roles of the LEMP and the LEMC in this action, versus the role of the Lead Agency for carrying out the recommended management strategy of the GWMP.

Also, with the complexity of this issue, it probably needs more work by the agencies involved. We would recommend putting this in the Unfinished Agenda, as it is worthwhile, but needs more exploration as to impact on ground water resources and methodology. Also, funding needs to be established for the Lead Agency first year activities.

6. **UST - 1A, 1B, 1C, 2A, 2B, 3A, 3C, 3D. Underground Storage Tanks: Related Actions**

Response: We concur with the educational approach to this potential problem. (**UST-3D Heating Oil Tanks - Education:** King County and the City of Issaquah will jointly educate homeowners and exempt tank owners regarding tank abandonment requirements of the Uniform Fire Code through the Issaquah Ground Water Management Plan Education Program.)

However, given the lack of evidence of documented ground water contamination, but acknowledging the concern of Ecology for this, we would recommend that these recommended management strategies be placed in the Unfinished Agenda. We realize that an actual documented contamination problem is not necessary to recommend management strategies in the GWMP, as other recommended management strategies are based on potential problems.

7. **OS-2A Hazardous Materials:** King County will: (1) inventory commercial, industrial, and institutional facilities served by on-site sewage disposal systems which potentially use, store, or dispose of hazardous materials; (2) educate operators on hazardous materials management; and (3) selectively monitor those facilities that appear

Response: We conditionally concur with this action based on the modification that the recommended management strategy, discussion and implementation specifically allows for agreement of LHMP fund expenditure through the LHMP decision process. Spending these funds must be authorized by the agencies involved in the LHWMP.

8. **OS-2B Hazardous Materials:** The SKCHD Environmental Health Division will (1) explore legal mechanisms for prohibiting the use and/or sale of products marketed as on-site sewage system additives which are intended to dissolve grease accumulations or to reduce the frequency of sludge removal from the septic tank and (2) prepare an ordinance for King County Board of Health's consideration which would prohibit the sale and/or use of such products within the cities and unincorporated areas of King County.

Response: The new WAC supersedes this recommended management strategy and we recommend that it be deleted.

9. **OS-2C Hazardous Materials:** Seattle-King County Health Department will prepare amendments to Title 13 of the Code of the King County Board of Health to expressly prohibit the use of on-site sewage systems for disposal of any materials or substances other than domestic sewage as defined in WAC 246-272-010 for King County Board of Health consideration.

Response: We concur with recommended management strategy. This is proposed to be included in the next revision of Title 13.

10. **OS-3A Household Hazardous Wastes:** ~~The Local Hazardous Waste Management Program in King County King County~~ will coordinate with the Household Hazardous Waste Education Committee to include information about ~~emphasize the~~ risks to ground water associated with the disposal of household hazardous wastes to on-site sewage systems ~~when conducting~~ as part of their household hazardous waste educational activities ~~as part of the Local Hazardous Waste Management Plan.~~

Response: We conditionally concur with this task provided that the revised wording provided by our staff is inserted as shown above. The ground water plan cannot commit LHWMP funds.

11. **OS-3B. Household Hazardous Wastes:** ~~King County~~ Seattle-King County Health Department will develop and carry out a public education program intended to increase awareness of proper on-site sewage system operation and maintenance, including the risks associated with proper disposal of hazardous wastes in such systems.

Response: We concur with this recommendation with the above change. The SKCHD currently has a public education program for on-site sewage disposal system maintenance. Additional funding would allow us to expand this program.

12. **OS-4A Operation and Maintenance:** Seattle-King County Health Department will prepare amendments to Title 13 of the Code of the King County Board of Health for King County Board of Health's consideration to require that the as-built on-site sewage treatment and disposal system plan be recorded with the property deed so that it be transferred with the title at the time of property purchase. In addition, information concerning the relationship between on-site system maintenance and operation practices and ground water protection should be added to the standard as-built plan form.

Response: We concur with recommended management strategy, as amended above. This is proposed to be included in the next revision of Title 13.

13. **OS-4B Operation and Maintenance:** Seattle-King County Health Department will examine the feasibility of a county-wide on-site sewage system management program to determine it's effectiveness in the protection of ground water.

Response: We concur. The SKCHD has started a process to catalogue the on-site sewage disposal and treatment systems in King County in order to quantify areas with failing systems.

14. **WC-1B State Program:** King County and Ecology will develop a local health department program for implementation of the delegated portion of the well construction and abandonment program in King County.

Response: We concur, this type of program follows the SKCHD goals and objectives subject to the establishment of adequate funding.

15. **Solid Waste: Related Actions**

~~**SW-1A Standards:** Ecology will determine whether the existing Minimum Functional Standards for Solid Waste Handling are consistent with the state Ground Water Quality Standards and revise as necessary.~~

SW-1B Standards: Seattle-King County Health Department will prepare amendments to Title 10 to ~~prohibit siting or expansion of landfills in high potential recharge areas (Aquifer Protection Areas)~~ adopt Chapter 173-351 WAC by reference for consideration by the King County Board of Health.

~~SW-1C Standards: Ecology (Minimum Functional Standards) and Seattle-King County Health Department (Title 10) will prepare amendments to their regulations to clearly state that cell expansion is subject to current standards, including location, for King County Board of Health's consideration.~~

Response: We concur with the wording change shown above. Ecology has revised the state solid waste regulation to include the ground water provisions: these are now adopted as Chapter 173-351 WAC. This WAC covers the GWAC's earlier concerns about liner separation and cell expansion. SKCHD has not yet adopted this WAC by reference.

16. **SW-2 Waste Screening:** Seattle-King County Health Department ~~and King County Solid Waste~~ will evaluate the effectiveness of the Waste Clearance and Screening Program and provide a report to the Management Committee within two years.

Response: We do not concur with this issue. The discussion needs to be clarified so that only the aspects of the Waste Clearance and Screening Program relating to ground water protection was evaluated, we could concur with the recommended management strategy.

17. **SW-3 Abandoned Sites:** ~~King County will proceed with investigation and remediation of the abandoned sites in a timely manner.~~ Seattle-King County Health Department will evaluate remediation efforts of King County on abandoned sites and make a report to the Management Committee.

Response: We concur with this task provided the above revised wording is inserted in the plan.

18. **BSE-1 Regulatory Program Staffing:** Seattle-King County Health Department will adequately staff the biosolids program.

Response: We cannot concur with this task and this action should be deleted. The SKCHD program no longer needs additional support.

19. **WQ-2A Data Needs:** Design and implement a ground water data collection management program ....

Response: We concur, this recommended management strategy is included in the DCMP, with associated funding.

20. **Water Quantity: Related Actions WQ-4B and WQ-4C.**

WQ-4B Conservation: Seattle-King County Department of Public Health will propose a revision to regulations for existing, new or expanded Group B Public Water Systems to address water conservation goals and measures for consideration by the King County Board of Health.

WQ-4C Conservation: Seattle-King County Department of Public Health will propose regulations for new and existing individual wells incorporating conservation measures, including source meters, for consideration by the King County Board of Health.

Response: We concur, these could be included in the next Title 12 revision.

CO:blo

/wpw

Memo

December 21, 1995

To: Laura Lowe, Department of Ecology
Catherine Moody, Chair of the Issaquah Ground Water Advisory Committee
Jack Davis, Chair of the Redmond-Bear Creek Ground Water Advisory Committee
Bill Lasby, Supervisor, Drinking Water and Ground Water Program

From: Joy Keniston-Longrie, Environmental Programs Manager, King County Department of Metropolitan Services

Re: Draft Issaquah Creek Valley and Redmond-Bear Creek Ground Water Management Plans

Thank you for including the revisions we requested in the draft Issaquah Creek Valley and Redmond-Bear Creek Valley Ground Water Management Plans. We, as the Department of Metropolitan Services, concur with the plans. We do however, have the following comments about this final draft:

- The State Dangerous Waste Regulations WAC 173-303 are still listed as the Federal Dangerous Waste Regulations WAC 173-303 throughout the document.

- The quotations and statements dealing with the SQG's and their generation and accumulation rates will need to change soon to reflect the pending changes to the Dangerous Waste Regulations. Those regulations will change shortly, shortly defined as, whenever the lawsuit against Ecology and the regulatory change process is settled.

- The statements about the services offered by the LHWMP may become inaccurate during 1996 due to the merger and the LHWMP plan update process.

- The responsibilities of various King County and Metro units mentioned in these documents will probably change during the first half of 1996 due to the merger process.

- All references to Metro will be inaccurate as of 1/1/96. After midnight of 12/31/95 Metro no longer exists.

After the Metropolitan King County Council has reviewed and concurred with the plan, and the funding has been secured, we look forward to implementation of the tasks identified for our agency.

Iss ✓
Vas -
SKCon ✓

STATE OF WASHINGTON

DEPARTMENT OF AGRICULTURE

P.O. Box 42560 • Olympia, Washington 98504-2560 • (360) 902-1800

June 5, 1995

Mr. Doug Rushton
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600

Dear Mr. Rushton:

I have reviewed the Issaquah Creek Valley Ground Water Management Plan. I found nothing in conflict with Department of Agriculture rules or policy. I have a couple of minor comments on the pesticide and fertilizer section of the plan.

In the section dealing with WSDA's regulatory authority on page 3-98, I would suggest adding Chapter 17.21 RCW, the Washington Pesticide Application Act. This law provides the authority for licensing and recordkeeping for pesticide applicators, including farmers. My second comment refers to the discussion of the WSDA Record Database Pilot Project on page 3-99. The discussion implies fertilizer was included in the project. The project did not include fertilizers. Applicators are not required to keep records of fertilizer applications.

If I can be of further assistance, please feel free to call me at (360) 902-2047.

Sincerely,

PESTICIDE MANAGEMENT DIVISION

Lee Faulconer

Lee Faulconer
Branch Manager, Program Development

LF:sb

enclosure: Chapter 17.21 RCW

Post-it Fax Note 7671	Date 6/20	# of pages ▶ 1
To TRUDY ROLLA	From D. RUSHTON	
Co./Dept. SEATTLE HEALTH	Co.	
Phone #	Phone # 407-6642	
Fax # 206 296 5997	Fax #	

King County
Solid Waste Division
Department of Natural Resources
Yesler Building
400 Yesler Way, Room 600
Seattle, WA 98104-2637
(206) 296-6542

February 20, 1996

TO: Mark Isaacson, Project Manager, Surface Water Management Division

FM: Kevin Kiernan, Engineering Services Manager

RE: Issaquah Creek Valley Groundwater Management Plan

Thank your for providing us the opportunity to review the revised draft of Management Strategies for the Issaquah Creek Valley Ground Water Management Plan. This revised draft is responsive to our previous comments that original management strategies were too broad, did not recognize protection afforded by existing regulations, and did not focus on the Ground Water Management Area (GWMA). The changes which have been made in this revised draft to a large degree alleviate our prior concerns. We would; however, like to be provided the opportunity to provide input and comment on future determinations with regard to the following:

- Elimination of certain categorical exemptions to SEPA (SA-1A).
- Designation of Environmentally Sensitive Areas (SA-1B).
- Adoption of General Aquifer Protection Standards (SA-1C).
- Enhanced Environmental Review to Protect Aquifers (SA-1D).
- Definition of Ground Water Recharge Areas (SA-1E).
- Basic Well Head Protection Program (SA-2).
- Sole Source Aquifer Petition (SA-3).

We are particularly concerned that the Sole Source Aquifer Petition, if one is to be filed and if one exists, will accurately represent the limits of the Sole Source and is based upon sound scientific evidence.

Again, thank you for the opportunity to comment and for your thoughtful consideration of our prior comments. If you have any questions please call me on extension 6-4419.

KK:SJ:mfn
SJ4/mimcm.doc

cc: Rodney G. Hansen, Manager, Solid Waste Division
Shirley Jurgensen, Supervising Engineer

King County
Water and Land Resources Division
Department of Natural Resources
700 Fifth Avenue, Suite 2200
Seattle, WA 98104-5022
(206) 296-6519
(206) 296-0192 FAX

September 3, 1998

Catherine Moody
Chair, Issaquah Creek Valley Ground Water Advisory Committee
10817 176th Circle Northeast
Redmond, WA 98052

Dear Ms. Moody:

Enclosed please find a copy of Motion 10496, passed by the Metropolitan King County Council on July 6, 1998, regarding their concurrence with the Issaquah Creek Valley Ground Water Management Plan.

As you know, County Council voted to require several changes in the Management Strategies document. Their recommendations, and the rationale for each, are listed in the enclosed concurrence letter that Council wrote (dated June 12 with the motion number "10496" stamped on each page). It is essentially the same requirements that you had reviewed (after final Council committee action) and discussed with the Ground Water Advisory Committee on July 2nd, as discussed in the written testimony you offered at the Council hearing. The concurrence letter does include the modification you suggested, incorporated by Councilman Derdowski, to change the issue of Aquifer Protection Area (in Section 3.3) to an unfinished business category. The concurrence letter states agreement with the goals and objectives of the groundwater program and specifies the revisions that are necessary for Council's concurrence with the plans. We will include both the motion and concurrence letter in Appendix B ("Letters of Concurrence") of the Management Plan.

As we discussed, the best course of action for the sake of groundwater protection seems to be to make the changes required by Council, finalize the plans and submit them to Ecology for certification, and proceed to implementation. This cover letter, transmitting to you the motion and concurrence letter from Council, describes in detail the changes we will make to the document to accomplish these requirements. Please let us know at your earliest convenience if you agree with the approach and the proposed changes. Since the changes were anticipated at the time of the meeting, I would not expect that another meeting of the Ground Water Advisory Committee would be required to ratify these changes.

These changes are described in the following paragraphs.

Management Strategy SA-1C (p. 2-10): change point number 2 to: "While protection and sustainable use of ground water based drinking supplies in the Issaquah Creek Valley Ground Water Management Area is preferred over importing water from sources outside of the Ground Water Management Area, importing water will not be prohibited if necessary to support urban development within the Urban Growth Area.".

Management Strategy SG-3B (Reclamation Plans, p. 2-51 to top of 2-52): replace with the following: "King County will provide comments to the State Department of Natural Resources on mine reclamation plans proposed within the Issaquah Creek Valley Ground Water Management Area. Additionally, consistent with KCCP Policy NE-333, King County will develop with affected jurisdictions, Best Management Practices for mining operations." We will keep this issue in mind in developing our approach to Well Head Protection.

Management Strategy HM-3 (p. 2-27), to designate zones for hazardous waste storage and treatment, will be deleted. The text of Issue 3, just above this location, will be kept as is. Also, we will again keep this issue in mind in developing approaches to Well Head Protection.

Section 3.3 (p. 3-4) for the Metropolitan King County Council to authorize a ballot measure to establish an Aquifer Protection Area: the text (from immediately following "Recommendation" to the beginning of Section 3.4) will be moved to Section 2.5, Unfinished Agenda, on page 2-57. The removed text will be replaced with the following: "**Recommendation:** King County is currently exploring approximately 6-8 long term funding alternatives for the purpose of implementing a ground water management program. If a regional funding source cannot be identified, the Issaquah Creek Valley Ground Water Management Committee should assess the feasibility of establishing an Aquifer Protection Area to provide funding for implementation of the Plan."

In Section 2.5, immediately before the text which was moved from Section 3.3, the following will be inserted: "**Aquifer Protection Area:** Metropolitan King County Council does not concur with the need to establish an Aquifer Protection Area until other funding options are considered. However, since this funding mechanism is favored by the City of Issaquah and the Sammamish Plateau WSD, this question remains an unresolved issue that will be addressed by the Issaquah Creek Ground Water Management Committee at a later date. The original recommendation of the Ground Water Advisory Committee is as follows:"

Section 3.5 (p. 3-6): the following sentence will be added to the end of the first paragraph on p. 3-6: "The Management Committee shall be established by motion by the Metropolitan King County Council with members appointed by the Council, serving staggered terms of three years." Section 3.8 (pp. 3-8, Implementation Plan): the last sentence in the first paragraph of this section will be replaced with the following: "Implementation efforts by King County, the City of Issaquah, and the Sammamish Plateau WSD will be phased in over time. These efforts are dependent upon the availability of funding."

As the enclosed concurrence letter by County Council says, King County is pressing ahead to begin implementation of the groundwater program. We, at King County Department of Natural Resources, are developing approaches for the various management strategies included in the Management Plans, working on a long-term funding option which will allow us to expanding our efforts in new directions, and establishing contacts with agencies and municipalities which may help this effort. We will of course be able to accomplish more when long-term funding is secured.

Thank you for the dedication and diligence of the Issaquah Creek Valley Ground Water Advisory Committee on this lengthy project. Please contact me at 206-296-8323 to discuss any questions you have about the above changes to the plans, and about what we can do to start the implementation phase of the groundwater program.

Sincerely,

Ken Johnson
Groundwater Program Lead

KJ:pra27

Enclosures

cc: Distribution List

09/23/97

ROB MCKENNA
PETE VON REICHBAUER
CYNTHIA SULLIVAN
LARRY PHILLIPS
JANE HAGUE

Introduced By: Brian Derdowski

sub 6/12/98 kn

Proposed No.: 97-602

MOTION NO. 10496

A MOTION regarding concurrence with the recommendations contained in the Issaquah Creek Valley Ground Water Management Plan.

WHEREAS, the Washington State Growth Management Act requires jurisdictions to designate critical areas, including areas with a critical recharging effect on aquifers used for potable water, RCW 36.70A.050, and

WHEREAS, Policy C-5 of the Countywide Planning Policies states that all jurisdictions that are included in ground water management plans shall support the development, adoption and implementation of the plans, Ordinance 11446, and

WHEREAS, Policy NE-333 of the King County Comprehensive Plan states that King County should protect the quality and quantity of the ground water countywide by placing a priority on implementation of ground water management plans, and

WHEREAS, the Washington State Department of Ecology has designated King County as the lead agency responsible for coordinating and undertaking the activities necessary for development of ground water management programs in the county, WAC 173-100-080, and

WHEREAS, a ground water advisory committee has been established for the Issaquah Creek Valley ground water management area, and

WHEREAS, the ground water advisory committee contained representatives of local governments, special purpose districts, water associations, agricultural interests, well drilling firms, forestry companies, industry and environmental organizations, and

WHEREAS, the Issaquah Creek Valley ground water advisory committee has overseen the development of the Issaquah Creek Valley Ground Water Management Plan, and

WHEREAS, the oversight provided by the ground water advisory committee has included reviewing the work plan, schedule and budget for development of the plan, assuring that the proposed plans are technically and functionally sound and verifying that the proposed plan is technically and functionally sound and verifying that the proposed plan is consistent with Washington state laws and authorities of affected agencies, WAC 173-100-090, and

WHEREAS the city of Issaquah and the Sammamish Plateau Water and Sewer District are required to implement some of the recommendations in the Issaquah Creek Valley Ground Water Management Plan and have issued letters of concurrence, and

WHEREAS, following the metropolitan King County council's review and comment on the plan's recommendations, the Issaquah Creek Valley Ground Water Management Plan will be submitted to the Washington State Department of Ecology for certification in accordance with WAC 173-100-120, and

WHEREAS, following the Department of Ecology's certification of the Issaquah Creek Valley Ground Water Management Plan, the metropolitan King County council will

be responsible for implementing those portions of the Plan which are within their jurisdictional authority to implement;

NOW, THEREFORE BE IT MOVED by the Council of King County:

The King County executive is hereby requested to transmit to the Issaquah Creek Valley Ground Water Advisory Committee a letter, substantially in the form attached, identifying the county's findings and indicating areas of county concurrence and non-concurrence with recommendations contained in the Issaquah Creek Valley Ground Water Management Plan. This letter should contain the following:

1. a clear statement of concurrence or nonconcurrence;
2. a statement of agreement with the goals and objectives of the ground water program; and
3. specific revisions necessary for county concurrence.

PASSED by a vote of 11 to 0 this 6th day of July, 19 98.

KING COUNTY COUNCIL
KING COUNTY, WASHINGTON

Ronald Mills
Chair

ATTEST:

Clerk of the Council

Attachments: Concurrence Letter

104964

June 12, 1998

Catherine Moody
Chair, Issaquah Ground Water Advisory Committee
10817 176th Circle NE
Redmond, WA 98052

Dear Ms. Moody:

King County generally agrees with the goals and objectives of the Issaquah Creek Valley Ground Water Management Plan, yet makes a statement of nonconcurrence based on its finding of inconsistency between the recommendations contained in the Plan and the intent of RCW ch. 90.44 and other federal, state and local laws. The County recognizes the importance of the Plan's recommendations to preserve and protect ground water, a highly valued natural resource. The County's role in implementing the recommendations of this Plan reflects the County's responsibility as a resource manager, a land development regulator, and the permitting authority for the unincorporated areas of King County.

King County's statement of nonconcurrence is based on its finding of inconsistency between several recommendations included in the Plan and adopted county comprehensive planning policies and county laws. These recommendations must be modified as set forth below to achieve consistency and to allow county concurrence with the Draft Ground Water Management Plan. These recommendations include Management Strategy SA-1C, Management Strategy SG-3B, Management Strategy HM-3, Section 3.3, Funding, Section 3.5, Ground Water Management Committee and Section 3.8, Implementation. A summary of the basis for non-consistency and the changes necessary for King County concurrence follows.

King County does not concur with the "import" language currently included in Management Strategy SA-1C. This finding of inconsistency is based upon the fact that that the strategy:

1. is inconsistent with County Wide Planning Policy CA-6;
2. is inconsistent with King County Comprehensive Plan Policy NE-335;
3. is inconsistent with King Count Comprehensive Plan Policy F-304; and
4. would affect portions of the Issaquah Creek Ground Water Management Area that are within the Urban Growth Area; water importing may be necessary to support urban development within the UGA.

King County can make a finding of consistency only if the text of Management Strategy SA-1C is amended as follows: "While protection and sustainable use of ground water based drinking supplies in the Issaquah Creek Valley Ground Water Management Area is preferred over importing water from sources outside of the Ground Water Management Area, importing water will not be prohibited if necessary to support urban development within the Urban Growth Area.".

King County does not concur with Management Strategy SG-3B (Reclamation Plans) as it is currently written. This finding of inconsistency is based upon the fact that the State DNR has regulatory authority over mine reclamation plans. King County's regulatory authority is limited to offering comments on proposed reclamation plans to DNR for consideration.

King County can make a finding of consistency only if the text of Management Strategy SG-3B is amended as follows: "King County will provide comments to the State DNR on mine reclamation plans proposed within the Issaquah Creek Valley Ground Water Management Area. Additionally, consistent with KCCP Policy NE-333, King County will develop with affected jurisdictions, Best Management Practices for mining operations."

King County does not concur with the recommendation of Management Strategy HM-3 to designate zones for hazardous waste storage and treatment. This finding of inconsistency is based upon the fact that the strategy:

1. is redundant; these issues are currently regulated by the Model Toxic Control Act; and
2. does not reflect King County's current use of industrial zoning, which is where King County allows hazardous wastes to be stored and treated.

King County can make a finding of consistency only if Management Strategy HM-3 is deleted.

King County does not concur with the recommendation in Section 3.3, for the Metropolitan King County Council to authorize a ballot measure to establish an Aquifer Protection Area. This finding of inconsistency is based upon the Council's adoption of Ordinance 12926 which required the King County Executive to provide a proposal for long term funding of King County's ground water program. King County's funding efforts will focus on identification of a long term funding source, and establishment of an Aquifer Protection Area will not be authorized until after these efforts have been exhausted.

King County understands that establishment of an Aquifer Protection Area is supported by the city of Issaquah for funding ground water activities. Therefore, King County concurrence with the GWMP is subject to the expansion of Section 2.5, Unfinished Agenda, to include an explanation of why the Aquifer Protection Area remains an unresolved issue that will be address by the Issaquah Creek Ground Water Management Committee at a later date.

King County does not concur with the recommendations of Section 3.5 as they are currently written. King County can concur with the Issaquah Creek Valley Ground Water

Management Plan if a statement is added to Section 3.5 which states: "The Management Committee shall be established by motion by the Metropolitan King County Council with members appointed by the Council, serving staggered terms of three years."

King County does not concur with the recommendations contained in Section 3.8 regarding implementation of the Plan. A finding of inconsistency is based upon existing obligations imposed by federal, state and local laws related to county revenues and expenditures. These limitations restrict the county from being able to fully commit to Plan implementation following certification.

King County can make a finding of consistency only if the text of Section 3.8 is amended to include the following statement: "King County implementation efforts will be phased in over time and is dependent upon the availability of funding.".

King County places a high priority on implementing the specific management strategies relating to wellhead protection, development of best management practices, education, and mapping of critical acquifer recharge areas. Once the Council adopts a long-term funding option, the County would start to undertake other implementation activities. Such activities would include coordinating and staffing the anticipated interjurisdictional ground water management committees; developing a data collection and management program to monitor ground water quality and quantity; and enhancing education programs to promote ground water protection.

Thank you for the dedication and diligence of the Issaquah Creek Valley Ground Water Advisory Committee on this lengthy project. Please contact Mark Isaacson, Department of Natural Resources, Water and Land Resources Division, at 206-296-8369 to discuss starting this work.

Sincerely,

Ron Sims
King County Executive

Issaquah Valley Ground Water Advisory Committtee

Address Line 2
Country

July 6, 1998

Madam Chair and members of the Metropolitan King County Council,

I wish to thank the Natural Resources Committee and the Growth Management Committee of the Council for their expeditous and thorough consideration of the Ground Water Management Plans, followed by their adoption of Proposed Substitute Motion 97-602 on June 12, 1998. Staff also has done yoeman service to Council and the public in organizing the Studies into managable units and informing the interested members of the public of changes and meeting dates.

Because the Isssaquah Creek Valley Ground Water Advisory Committee had not met in over two years, I called a meeting last Thursday, July 2 to review and discuss the changes called for in the draft letter of non-concurrence you provided. The names of the GWAC members in attendance is appended. I will briefly review the committee's preliminary responses to the draft letter.

- Management Strategy SA-1C: Import language

Events have overtaken us. The City of Issaquah has written to Seattle Public Utilities requesting it to sell water to the City which now forecasts that its water supply will be fully utilized by the year 2002 or 2003. We agree to the amendment.

- Management Strategy SG-3B: Reclamation Plans

The amended text is agreeable to the committee. However, a Wellhead Protection Plan has been adopted which protects both City of Issaquah and Sammamish Plateau Water and Sewer District Wells in the lower valley.In Wellhead Protection Zones, the City of Issaquah may impose additional restraints on mining operations. We believe the King Coounty Comprehensive Plan also recognizes Wellhead Protection Plans and should include them in their Best Management Practices documents.

- Management Strategy HM-3: Hazardous Waste Storage and Treatment

In the unincorporated area of the Issaquah basin there are production wells belonging to the SPWSD in the industrial zone. The Wellhead Protection Plan is applicable here, we believe.

- Section 3-3: A ballot measure to establish an Aquifer Protection Area.

Establishing an Aquifer Protection Area, including voter approval of a levy to provide funding, was a condition of concurrence insisted upon by the Mayor and Council of the City of Issaquah and the commissioners of the SPWSD. It will be necessary for both bodies of elected officials to revisit this issue which they consider a matter of equity to the citizens of their jurisdictions. To avoid delaying the certification of the Ground Water Management Plan, we would favor placing this issue in the "unfinished business" category.

- Section 3.5: Ground Water Management Committee

The agencies to be represented on the Growth Management are the principal water rights holders in the Issaquah Basin. The present Issaquah Ground Water Advisory Committee will be dissolved when the Management Plan is

certified. A new Advisory Committe will be instituted by the Ground Water Management Committee or the King County Council to represent citizens concerns including those Class A, Class B and residential well owners who live in the unincorporated area south of the City of Issaquah.

- Section 3.8 Implementation Plan

We agree to the requested amendment. Since the City of Issaquah and the SPWSD are also charged with implementation efforts in the Plan, they request that their names be added to the amendment.

The Issaquah Creek Valley will be available to meet, as necessary, to bring this Plan into concurrance with the Metropolitan King County Council.

Issaquah Creek Valley Ground Water Advisory Committee

Catherine Moody, Chair	League of Women Voters of Lake Washington East
Ruth Shearer	Citizen
Denise Smith	K. C. Master Gardner
Ruth Kees	Environmental Council
Bert Giberson	Grange
Bob George	SPWSD
Sheldon Lynne	City of Issaquah
Mark Isaacson	King County Department of Natural Resources
Ken Johnson	King County Department of Natural Resource

YOUR NAME GOES HERE (Signature below)

Issaquah Valley Ground Water Advisory Committtee

September 7, 1998

F. Y. I.

To Members of the Issaquah Creek Valley Ground Water Advisory Committee,

Dear Ken,

I am assuming that you have received the packet dated September 3, from Ken Johnson, King County Ground Water Lead. He references my testimony to the King County Council on July 6, 1998. I am enclosing a copy of that testimony. I tried to convey to the Council the concerns and points of disagreement that some of you expressed at our meeting of July 2, 1998.

I believe that the results are ones that we can live with.....and the best we can do. If you wish to meet again, let me know. I want to be sure that we are all satified with the Study as amended by the King County Council.

Thanks to all of you for your patience and diligence in this labor. Protecting the quality and quantity of ground water in the Issaquah basin was and is a worthwhile mission.

It has been a great pleasure to me to have known you and to have worked with you to complete this project.

Sincerely yours,

Catherine Moody